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FEDERAL - STATE - PRIVATE  
COOPERATIVE SNOW SURVEYS

U. S. DEPT. OF AGRICULTURE  
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MAR 22 1966

CURRENT SERIAL RECORD

**WATER SUPPLY OUTLOOK**  
and  
**FEDERAL - STATE - PRIVATE COOPERATIVE SNOW SURVEYS**  
for  
**ARIZONA**

UNITED STATES DEPARTMENT of AGRICULTURE...SOIL CONSERVATION SERVICE.  
SALT RIVER VALLEY WATER USERS ASSOCIATION  
and  
ARIZONA AGRICULTURAL EXPERIMENT STATION

Data included in this report were obtained by the agencies  
named above in cooperation with the Federal, State and pri-  
vate organizations listed on the last page of this report.

||||||| AS OF |||||  
**MAR. 1, 1966**



# UNITED STATES DEPARTMENT OF AGRICULTURE - SOIL CONSERVATION SERVICE

## To Recipients of Water Supply Outlook Reports:

Most of the usable water in western states originates as mountain snowfall. This snowfall accumulates during the winter and spring, several months before the snow melts and appears as streamflow. Since the runoff from precipitation as snow is delayed, estimates of snowmelt runoff can be made well in advance of its occurrence. Streamflow forecasts published in this report are based principally on measurement of the water equivalent of the mountain snowpack.

Forecasts become more accurate as more of the data affecting runoff are measured. All forecasts assume that climatic factors during the remainder of the snow accumulation and melt season as they affect runoff will add to be an effective average. Early season forecasts are therefore subject to a greater change than those made on later dates.

The snow course measurement is obtained by sampling snow depth and water equivalent at surveyed and marked locations in mountain areas. A total of about ten samples are taken at each location. The average of these are reported as snow depth and water equivalent. These measurements are repeated in the same location near the same dates each year.

Snow surveys are made monthly or semi-monthly from January 1 through June 1 in most states. There are about 1400 snow courses in Western United States and in the Columbia Basin in British Columbia. In the near future, it is anticipated that automatic snow water equivalent sensing devices along with radio telemetry will provide a continuous record of snow water equivalent at key locations.

Detailed data on snow course and soil moisture measurements are presented in state and local reports. Other data on reservoir storage, summaries of precipitation, current streamflow, and soil moisture conditions at valley elevations are also included. The report for Western United States presents a broad picture of water supply outlook conditions, including selected streamflow forecasts, summary of snow accumulation to date, and storage in larger reservoirs.

Snow survey and soil moisture data for the period of record are published by the Soil Conservation Service by states about every five years. Data for the current year is summarized in a West-wide basic data summary and published about October 1 of each year.

Listed below are water supply outlook reports based on Federal-State-Private Cooperative snow surveys. Those published by the Soil Conservation Service may be obtained from Soil Conservation Service, Room 507, Federal Building, 701 N. W. Glisan, Portland, Oregon 97209.

### PUBLISHED BY SOIL CONSERVATION SERVICE

<u>REPORTS</u>	<u>ISSUED</u>	<u>LOCATION</u>	<u>COOPERATING WITH</u>
<b>RIVER BASINS</b>			
WESTERN UNITED STATES	MONTHLY (FEB.-MAY)	PORTLAND, OREGON	ALL COOPERATORS
BASIC DATA SUMMARY	OCTOBER 1	PORTLAND, OREGON	ALL COOPERATORS
<b>STATES</b>			
ALASKA	MONTHLY (MAR.-MAY)	PALMER, ALASKA	ALASKA S.C.D.
ARIZONA	SEMI-MONTHLY (JAN.15 - APR.1)	PHOENIX, ARIZONA	SALT R. VALLEY WATER USERS ASSOC. ARIZ. AGR. EXP. STATION
COLORADO AND NEW MEXICO	MONTHLY (FEB.-MAY)	FORT COLLINS, COLORADO	COLO. STATE UNIVERSITY COLO. STATE ENGINEER N. MEX. STATE ENGINEER
IDAHO	MONTHLY (JAN.-JUNE)	BOISE, IDAHO	IDAHO STATE RECLAMATION ENGINEER
MONTANA	MONTHLY (JAN.-JUNE)	BOZEMAN, MONTANA	MONT. AGR. EXP. STATION
NEVADA	MONTHLY (JAN.-MAY)	RENO, NEVADA	NEVADA DEPT. OF CONSERVATION AND NATURAL RESOURCES - DIVISION OF WATER RESOURCES
OREGON	MONTHLY (JAN.-JUNE)	PORTLAND, OREGON	OREG. STATE UNIVERSITY OREGON STATE ENGINEER
UTAH	MONTHLY (JAN.-JUNE)	SALT LAKE CITY, UTAH	UTAH STATE ENGINEER
WASHINGTON	MONTHLY (FEB.-JUNE)	SPOKANE, WASHINGTON	WN. STATE DEPT. OF CONSERVATION
WYOMING	MONTHLY (FEB.-JUNE)	CASPER, WYOMING	WYOMING STATE ENGINEER

### PUBLISHED BY OTHER AGENCIES

<u>REPORTS</u>	<u>ISSUED</u>	<u>AGENCY</u>
BRITISH COLUMBIA	MONTHLY (FEB.-JUNE)	WATER RESOURCES SERVICE, DEPT. OF LANDS, FOREST AND WATER RESOURCES, PARLIAMENT BLDG., VICTORIA, B.C., CANADA
CALIFORNIA	MONTHLY (FEB.-MAY)	CALIF. DEPT. OF WATER RESOURCES, P.O. BOX 388, SACRAMENTO, CALIF.

**WATER SUPPLY OUTLOOK**  
and  
**FEDERAL - STATE - PRIVATE COOPERATIVE SNOW SURVEYS**  
for  
**ARIZONA**

(Salt, Verde, Gila and Part of Lower Colorado River Basin)

*Report prepared by*

RICHARD W. ENZ...SNOW SURVEY SUPERVISOR  
SOIL CONSERVATION SERVICE  
ROOM 6029 FEDERAL BUILDING  
PHOENIX, ARIZONA 85025

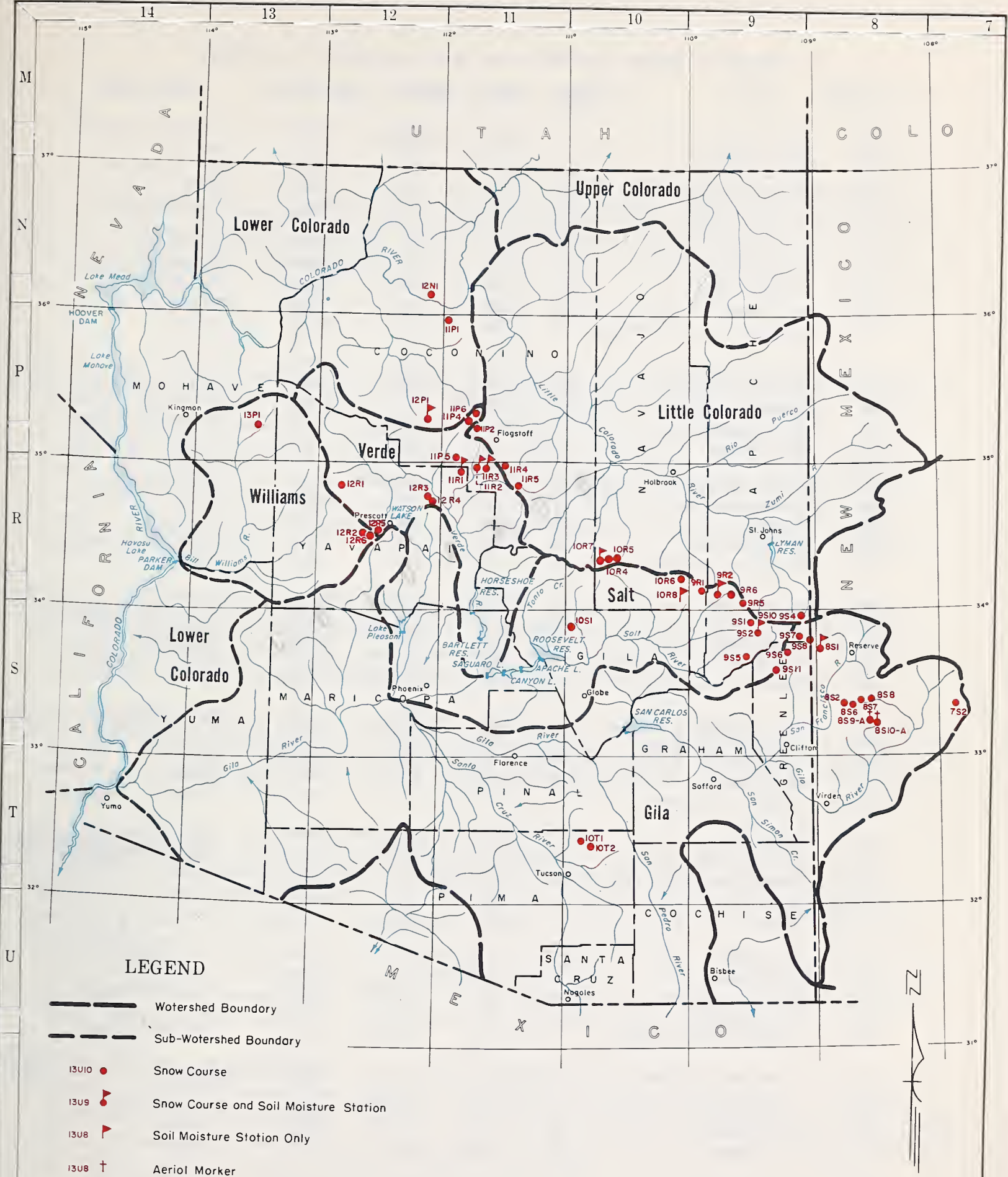
*Issued by*

MERRITT D. BURDICK  
STATE CONSERVATIONIST  
SOIL CONSERVATION SERVICE

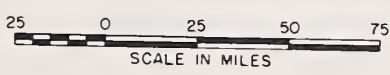
VICTOR I. CORBELL  
PRESIDENT  
SALT RIVER VALLEY WATER USERS ASSOCIATION







# ARIZONA COOPERATIVE SNOW SURVEYS Snow Courses and Sub-Watersheds



# INDEX to SNOW COURSES and SOIL MOISTURE STATIONS

Number**	Name	Sec	Twp	Rge***	Elevation	River Basin
9S1	Baldy (p)	28	7N	27E	9125	Little Colorado
10T1	Bear Wallow	6	12S	16E	8100	Gila
9S6	Beaver Head	13	4N	30E	8000	San Francisco
9S10-*	Black River Divide	10	6N	27E	9400	Salt
12N1	Bright Angel	34	33N	3E	8400	Lower Colorado
12R1	Camp Wood	3	16N	6W	5700	Verde
10R7-M	Canyon Creek #2	18	11N	15E	7500	Little Colorado
11R2-M	Casner Park	19	18N	8E	6930	Verde
12P1-M	Chalender	27	22N	3E	7100	Verde
12R6	Copper Basin Divide (p)	23	13N	3W	6720	Verde
10R8 -*	Corduroy Creek	4	8N	21E	6000	Salt
9S7	Coronado Trail	26	5N	30E	8000	San Francisco
10R6	Forest Dale	2	9N	21E	6430	Salt
11P2	Fort Valley (p)	22	22N	6E	7350	Little Colorado
9R5	Ft. Apache	18	7N	27E	9160	Little Colorado
8S1-M	Frisco Divide	31	6S	20W****	8000	San Francisco
12R4	Gaddes Canyon	11	15N	2E	7600	Verde
10R5	Gentry	36	11N	15E	7650	Salt
11P1	Grand Canyon	21	30N	4E	7500	Lower Colorado
9S11	Hannagan Meadows (p)	19	3N	29E	9090	Salt
11R5	Happy Jack	30	17N	9E	7630	Verde
10R4	Heber (p)	28	11N	15E	7600	Little Colorado
8S9-A	Hummingbird	19	11S	17E	10550	San Francisco
8S6	Ice King	6	11S	18W****	8020	San Francisco
7S2	Inman	6	11S	10W****	7800	Gila
12R2	Iron Springs	22	14N	3W	6200	Bill Williams
9S2	Maverick Fork (p)	13	6N	27E	9150	Salt
9R2-M	McNary	23	8N	23E	7200	Salt
9R1	Milk Ranch	33	8N	23E	7000	Salt
12R3	Mingus Mountain	3	15N	2E	7100	Verde
8S2	Mogollon	2	11S	19W****	7000	San Francisco
11R4	Mormon Lake	13	18N	8E	7350	Little Colorado
11R3-M	Mormon Mountain (p)	14	18N	8E	7500	Verde
11R1-M	Munds Park	7	18N	7E	6500	Verde
11P5-M	Newman Park	25	19N	6E	6750	Verde
9S4	Nutriosio	23	6N	30E	8500	San Francisco
9S5	Pacheta	27	4-1/2N	27E	7800	Salt
8S7	Redstone Trail	5	11S	18W****	8600	San Francisco
10T2	Rose Canyon	15	12S	16E	7300	Gila
8S8	Silver Creek Divide	4	11S	18W****	9000	San Francisco
11P4	Snow Bowl #1 (p)	36	23N	6E	10260	Verde
11P6	Snow Bowl #2	31	23N	7E	11000	Verde
9S8	State Line	6	6S	21W****	8000	San Francisco
12R5	White Spar	19	13N	2W	6000	Verde
8S10-A	Whitewater	19	11S	17E	10750	Gila
13P1	Willow Ranch	16	21N	11W	5000	Bill Williams
9R6	Wilson Lake	4	7N	26E	9000	Salt
10S1	Workman Creek	33	6N	14E	6900	Salt

\* SOIL MOISTURE STATION ONLY

\*\* NUMBER INDICATES LOCATION OF SNOW COURSE WITHIN COORDINATE RECTANGLE, THUS 9N1 IS COURSE #1 IN COORDINATE RECTANGLE 9N.

\*\*\* ALL IN GILA AND SALT RIVER BASE AND MERIDIAN EXCEPT WHERE OTHERWISE INDICATED.

\*\*\*\* NEW MEXICO PRINCIPAL MERIDIAN

M SOIL MOISTURE STATION INSTALLED ON OR IN VICINITY OF SNOW COURSE.

(p) STORAGE GAGE INSTALLED ON OR IN VICINITY OF SNOW COURSE.

A AERIAL SNOW DEPTH GAGE



# ARIZONA WATER SUPPLY OUTLOOK

MARCH 1, 1966

\* \* \* \* \*  
\* The Water Supply Outlook For Arizona is the best in 25 Years.\*  
\* All major reservoirs except San Carlos are expected to fill; \*  
\* many are already full. \*  
\* \*  
\* \* \* \* \*

SNOW COVER: The heaviest snow pack since 1949 is present in the White Mts. along the Coronado Trail and in the Mogollon Mts. of New Mexico. This results in a snow pack of 315% of average on the Gila Watershed. Snow cover on the Salt River Watershed is 193% of average with the heaviest snow in the White Mts. On the Verde River Watershed snow cover is down to 132% of average. Continued cold temperatures have maintained the water content of the snow pack, although snowfall the last two weeks has been insignificant.

PRECIPITATION: February precipitation has generally been near normal on the major watersheds with most of it occurring in the first half of the month. Southern Arizona received heavier precipitation. Since November 1, mountain precipitation has been 170-213% of average.

SOIL MOISTURE: Heavy early precipitation, cool temperatures, and a minimum of wind has resulted in excellent soil moisture conditions on the watersheds. High runoff will result from average precipitation the next few months.

RESERVOIR STORAGE: Salt River Project Reservoirs are being held at 90% of capacity with some spilling of water taking place the last two weeks. Streamflow forecasts assure the filling of these reservoirs as well as meeting March and April irrigation needs. Lyman Reservoir presently 68% of capacity is expected to fill the last half of April with 10,000 acre feet to spare. Storage in San Carlos Reservoir, although 553% of average is only 34% of capacity. An inflow of 160,000 acre feet is anticipated this spring. All other reservoirs in the State are presently full.

STREAMFLOW AND WATER SUPPLY: The Salt River Project streams are forecast to produce 605,000 acre feet during the March through May period. This is 166% of 1948-62 Average. The Gila River at the Head of the Safford Valley is forecast to flow 202,000 acre feet, or 260% of average, and is expected to hold a flow of over 100 cfs until July 15.

On all projects except San Carlos, early and heavy irrigation is encouraged so as much as possible of the surplus water can be put to beneficial use.



# STREAM FLOW FORECASTS - MARCH 1, 1966

The following summarized runoff forecasts are based principally on mountain snow cover and on the assumption that precipitation and temperature will be near average from the present time to the end of the forecast period. Appreciable deviations from normal of temperature and/or precipitation will correspondingly modify these forecasts.

SUB-WATERSHED, STREAM and STATION	SEASONAL STREAM FLOW IN THOUSANDS OF ACRE FEET					
	FORECAST PERIOD: MARCH - MAY, INCLUSIVE					
	Forecast Runoff 1966	Percent 15-Year Average	Measured Runoff			1948-62 Average
			1965	1964	1963	
Salt River near Roosevelt	385	170	395.9	93.1	120.0	226.4
Tonto Creek near Roosevelt	45	177	79.1	9.6	3.6	25.4
Verde River above Horseshoe	175	154	365.6	90.4	29.9	113.7
Gila River near Gila	81	228	32.0	12.0	23.7	35.5
Gila River near Virden	102	257	35.9	10.3	25.7	39.7
Gila River near Solomon	202	260	69.5	17.3	50.0	77.7
Frisco River at Clifton	104	257	38.5	10.0	24.8	40.5
Frisco River near Glenwood	47	272	16.6	2.3	7.1	17.3
Little Colorado River above Lyman Dam (MARCH-JUNE, Incl.)	21	241	18.6	4.5	1.9	8.7
<hr/>						
(Month of March)						
Gila River near Solomon	98	253	30.2	6.6	22.1	38.7
<hr/>						
(Month of April)						
Little Colorado River above Lyman Dam	14.6	261	12.3	3.5	0.9	5.6

The Gila River near Solomon is forecast to flow above 100 cfs until July 15.





STATUS OF ARIZONA RESERVOIR STORAGE - ABOUT MARCH 1, 1966

SUB - WATERSHED and/or STREAM	RESERVOIR	USABLE CAPACITY 1000's ACRE FT.	USABLE STORAGE - 1000's ACRE FEET			
			1966	1965	1964	15-Year Average 1948-62
<u>GILA RIVER DRAINAGE</u>						
Agua Fria	Lake Pleasant	157.6	157.6	26.3	13.1	30.7
Granite	Watson Lake	4.7	4.7	3.3	3.9	---
Gila	San Carlos	1,206.0	410.2	75.0	63.2	74.4
Verde	Bartlett	179.5	154.5	142.6	17.8	79.3
Verde	Horseshoe	142.8	111.5	7.8	1.5	25.2
Salt	Roosevelt	1,382.0	1,243.4	472.2	420.3	426.3
Salt	Apache	245.0	237.0	232.1	239.6	203.6
Salt	Canyon	58.0	55.9	51.6	55.2	48.7
Salt	Saguaro	70.0	50.9	65.4	65.0	53.1

<u>COLORADO RIVER DRAINAGE</u>						
Colorado	Lake Havasu	619.4	543.6	517.5	539.6	546.5
Colorado	Lake Mohave	1,810.0	1,698.7	1,683.0	1,674.0	1,566.2*
Colorado	Lake Mead	27,207.0	15,589.0	11,361.0	15,081.0	17,036.1
Colorado	Lake Powell	25,002.0	8,747.8	6,223.3	3,119.0	---
Little Colo.	Lyman	30.6	21.0	10.8	10.5	7.3
Little Colo.	Show Low Lake	5.1	5.1	3.0	0.8	1.3*

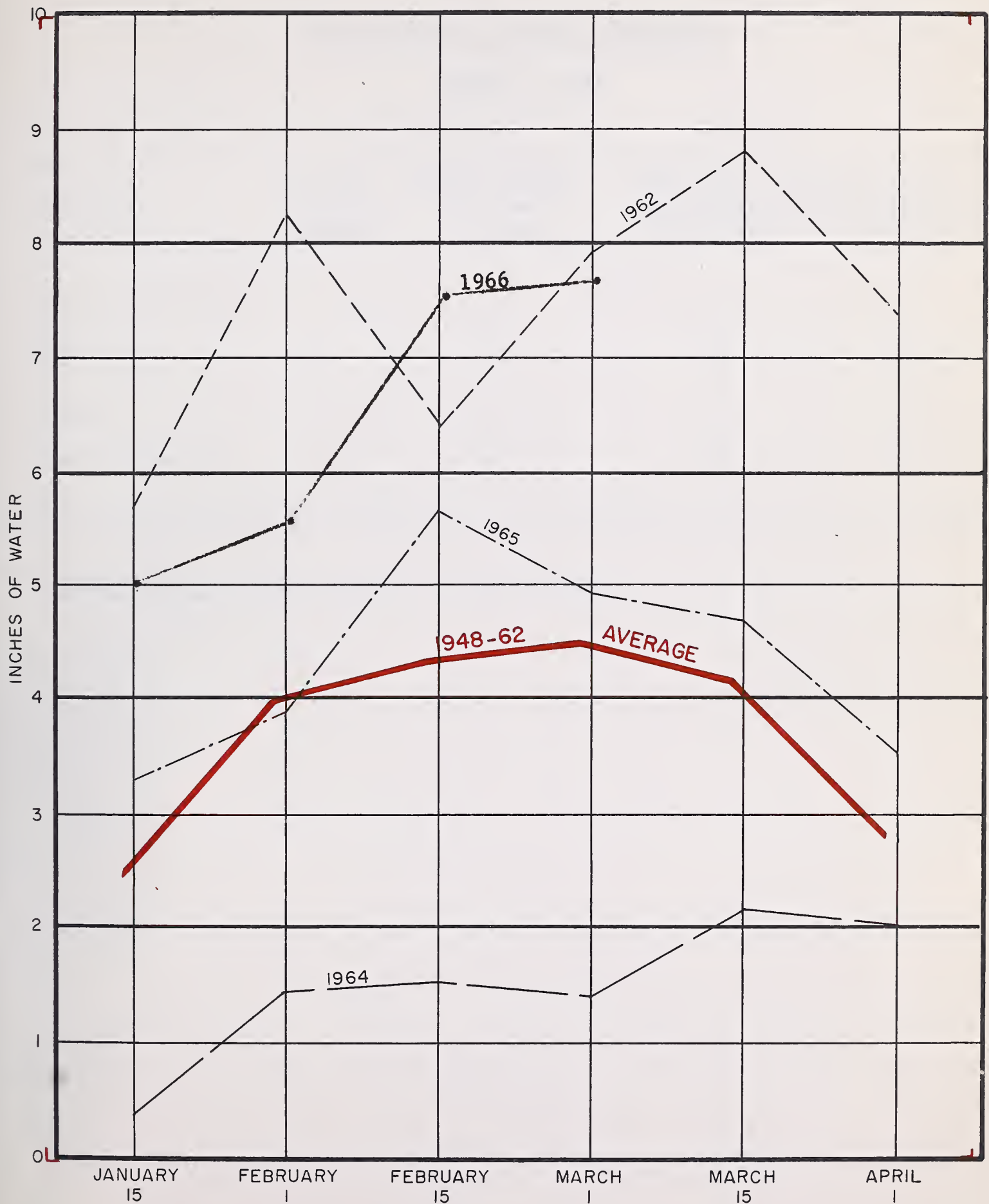
\* Average is for less than 15 years of record in the 1948-62 period.





# RELATIVE SNOW WATER ACCUMULATION ARIZONA

MARCH 1, 1966



*This graph represents the average snow water content on eleven selected snow courses on Arizona Sub-Watersheds.*



SNOW COVER ON ARIZONA WATERSHEDS

MARCH 1, 1966

Watershed	No. of Courses Average	Water Content of Snow (Inches)	This Year's Water Content of Snow Expressed as Percent of:	
			Last Year	Average *
Gila	7	6.3	219	315
Salt	10	9.3	160	193
Verde	7	5.4	173	132
Little Colorado	4	9.3	125	167

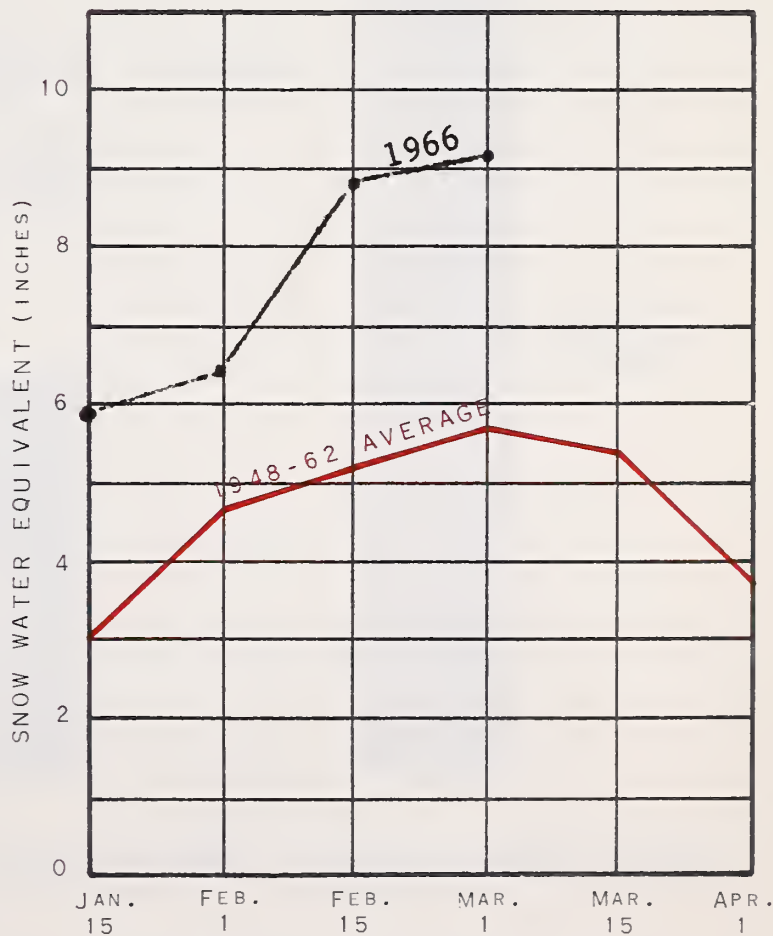
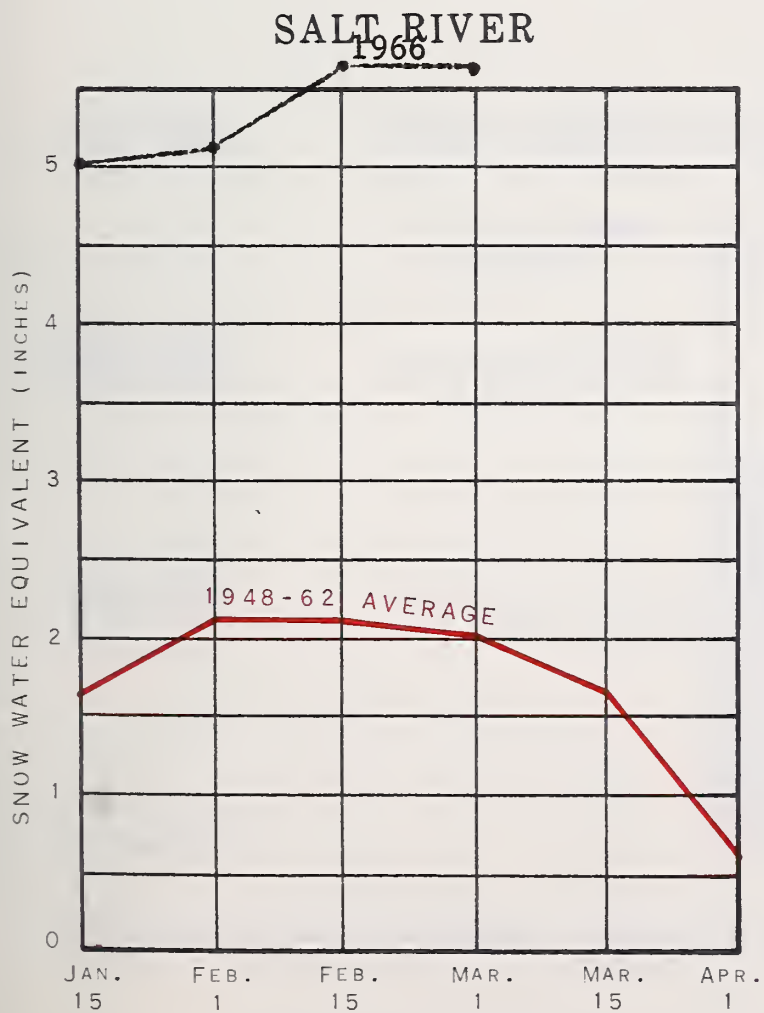
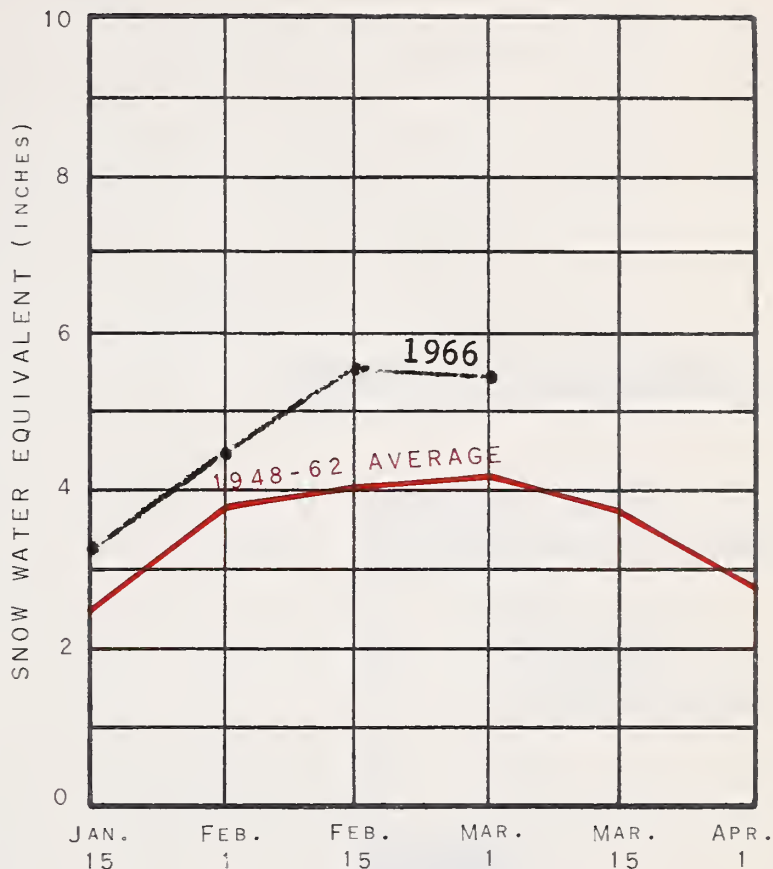
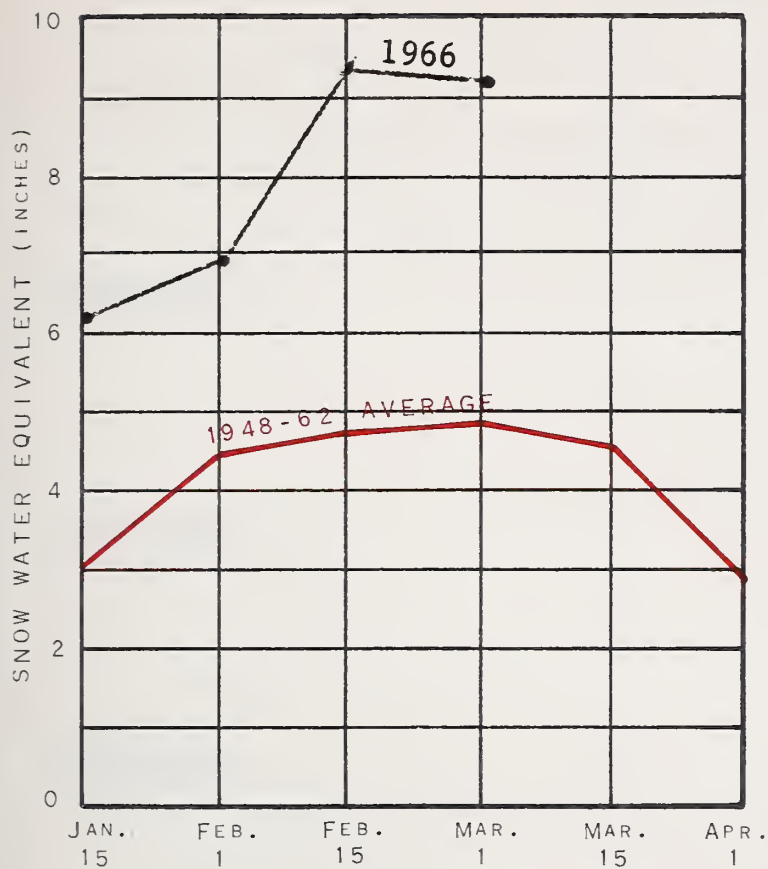
\* Actual or Estimated 1948-62, 15-year Average





1966

# ARIZONA SNOW COVER BY WATERSHEDS

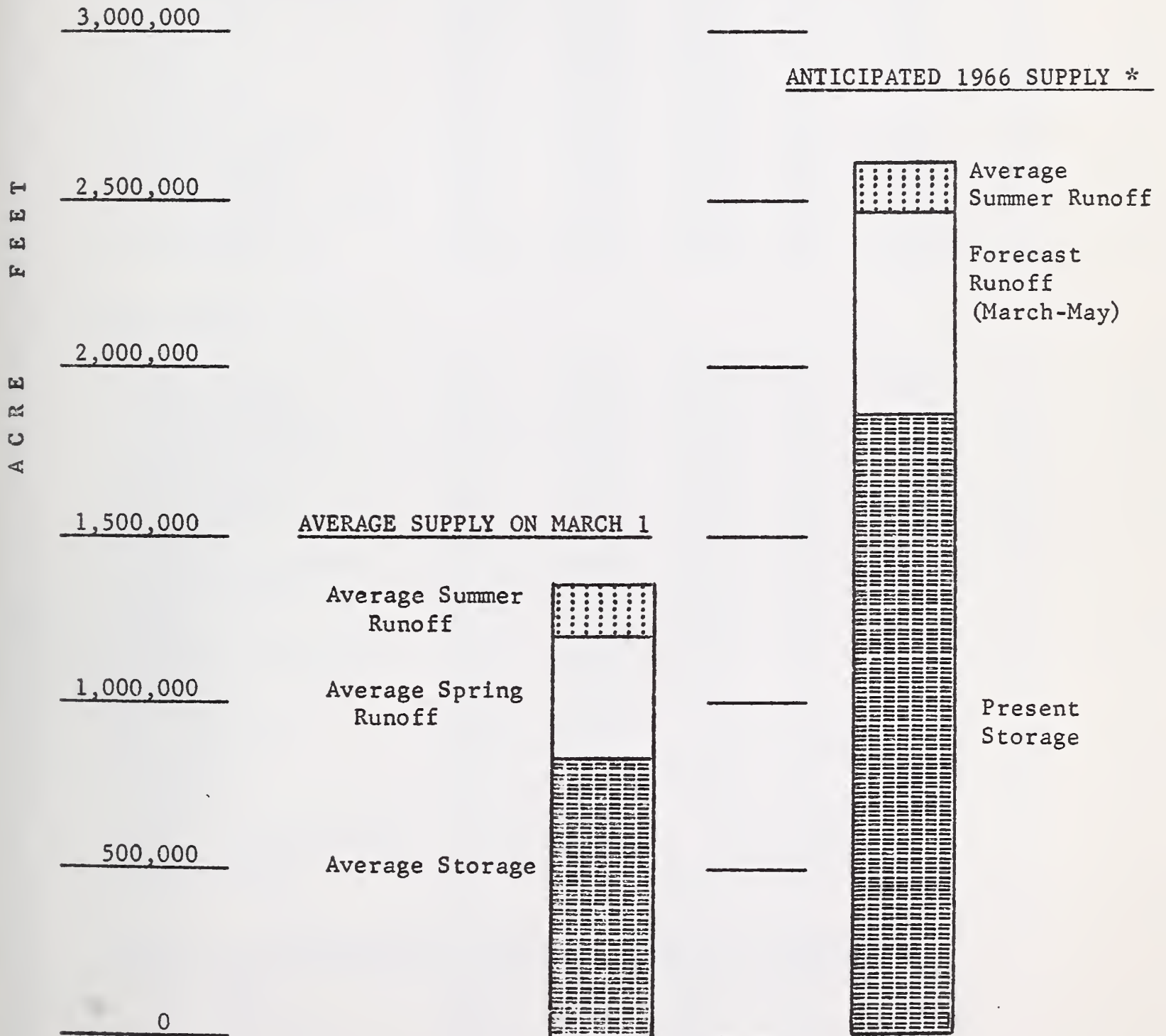


BASED ON SELECTED SNOW SURVEY COURSES





WATER SUPPLY INVENTORY  
SALT RIVER VALLEY SYSTEM  
MARCH 1, 1966



\* Based on present Storage + Forecast Spring runoff + Average Summer runoff.



**SNOW ABOUT MARCH 1, 1966**

DRAINAGE BASIN and SNOW COURSE			CURRENT INFORMATION			PAST RECORD	
			DATE OF SURVEY	SNOW DEPTH (Inches)	WATER CONTENT (Inches)	WATER CONTENT (Inches)	
NAME	NO.	ELEVATION				LAST YEAR	AVERAGE <sup>a</sup>

**GILA RIVER**

Bear Wallow	10T1	8100	2/28	54	16.1	4.0	3.5
Beaver Head	9S6	8000	2/27	32	9.0	2.1	2.8
Coronado Trail	9S7	8000	2/28	30	9.1	5.6	2.5
Frisco Divide	8S1-M	8000	2/28	25	7.0	2.9	2.1
Hannagan Meadows *	9S11	9090	2/27	54	16.6	11.9	---
Hummingbird #2 (A)	8S10-A	10400	2/28	75	23.0	17.7	---
Ice King	8S6	8020	2/28	37	10.1	6.3	---
Inman	7S2	7800	2/28	2	0.6	1.0	0.4
Mogollon	8S2	7000	2/28	11	3.1	2.6	2.0 **
Nutrioso	9S4	8500	2/28	22	6.9	3.7	1.9
Redstone Trail	8S7	8600	2/28	43	12.7	9.1	---
Rose Canyon	10T2	7300	2/28	37	11.6	2.9	1.5
Silver Creek Divide	8S8	9000	2/28	58	19.9	13.4	---
State Line	9S8	8000	2/28	30	8.1	2.1	2.2
Whitewater (A)	8S9-A	10500	2/28	98	28.0	20.1	---

**SALT RIVER**

Baldy *	9S1	9125	2/27	45	12.8	11.5	8.9 **
Beaver Head	9S6	8000	2/27	32	9.0	2.1	2.8
Canyon Creek #2	10R7-M	7500	2/26	19	5.4	3.1	3.5 **
Coronado Trail	9S7	8000	2/28	30	9.1	5.6	2.5
Forest Dale	10R6	6430	2/28	4	1.4	0.8	0.7
Ft. Apache *	9R5	9160	2/27	43	11.7	11.9	9.5 **
Gentry	10R5	7600	2/26	19	6.1	2.3	3.4 **
Hannagan Meadows	9S11	9090	2/27	54	16.6	11.9	---
Hawley Lake	9R10	8300	2/28	30	8.6	---	---
Heber	10R4	7600	2/26	20	6.3	3.1	3.6 **
Maverick Fork	9S2	9050	2/27	53	16.6	13.8	10.8 **
McNary	9R2-M	7200	2/28	18	5.9	2.7	2.1
Milk Ranch	9R1	7000	2/28	9	2.9	1.6	1.0
Mt. Ord (A)	9R9-A	11000	No	Survey	---	---	---
Nutrioso *	9S4	8500	2/28	22	6.9	3.7	1.9
Pacheta	9S5	7800	2/28	34	9.4	1.6	3.4 **
Smith Cienega #1 (A)	9R7-A	9700	No	Survey	---	---	---
Smith Cienega #2 (A)	9R8-A	9900	No	Survey	---	---	---
Wilson Lake	9R6	9000	2/26	41	12.3	---	---
Workman Creek	10S1	6900	2/24	26	8.7	4.3	3.6 **

**DELAYED REPORTS RECEIVED SINCE LAST BULLETIN - FEBRUARY 15:**

Camp Wood	12R1	5700	2/17	4	1.2		
Snow Bowl #1	11P4	10260	2/17	43	13.6		
Snow Bowl #2	11P6	11000	2/17	71	21.4		

(a) 1948-62, 15 year period. (\*) Adjacent drainage. (\*\*) 1948-62 Adjusted Average. (A) Aerial observation: Water content estimated.





**SNOW ABOUT MARCH 1, 1966**

DRAINAGE BASIN and SNOW COURSE			CURRENT INFORMATION			PAST RECORD	
			DATE OF SURVEY	SNOW DEPTH (Inches)	WATER CONTENT (Inches)	WATER CONTENT (Inches)	
NAME	NO.	ELEVATION				LAST YEAR	AVERAGE <sup>a</sup>
<b>VERDE RIVER</b>							
Baker Butte	11R6	7300	2/26	34	10.7	---	---
Camp Wood	12R1	5700	Report Delayed			0.0	0.9
Casner Park	11R2-M	6930	2/25	14	4.4	1.6	3.2 **
Chalender	12P1-M	7100	2/28	21	5.4	2.4	3.2
Copper Basin Divide	12R6	6720	2/28	13	4.2	0.7	---
Fort Valley	11P2	7350	2/28	15	4.5	1.6	2.6
Gaddes Canyon	12R4	7600	3/1	31	8.2	6.7	5.3 **
Happy Jack *	11R5	7630	2/28	19	5.8	3.5	4.4 **
Iron Springs *	12R2	6200	2/28	2	0.7	0.0	1.1
Mingus Mountain	12R3	7100	3/1	7	2.4	T	1.2
Mormon Lake *	11R4	7350	2/25	20	6.2	3.3	4.9
Mormon Mountain	11R3-M	7500	2/25	22	7.3	4.5	7.2 **
Munds Park	11R1-M	6500	2/25	12	3.7	1.5	2.7 **
Newman Park	11P5-M	6750	2/25	11	3.8	0.9	---
Snow Bowl #1	11P4	10260	2/28	44	13.4	12.3	---
Snow Bowl #2	11P6	11000	2/28	73	21.7	17.2	---
White Spar	12R5	6000	2/28	1	0.4	0.0	---
<b>BILL WILLIAMS RIVER</b>							
Camp Wood *	12R1	5700	Report Delayed			0.0	0.9
Copper Basin Divide	12R6	6720	2/28	13	4.2	0.7	---
Iron Springs	12R2	6200	2/28	2	0.7	0.0	1.1
Willow Ranch	13P1	5000	2/28	0	0.0	0.0	0.4
<b>LOWER COLORADO RIVER</b>							
Bright Angel	12N1	8400	No Survey			---	9.6 **
Chalender *	12P1-M	7100	2/28	21	5.4	2.4	3.2
Fort Valley	11P2	7350	2/28	15	4.5	1.6	2.6
Grand Canyon	11P1	7500	2/28	11	3.3	1.6	2.2
<b>LITTLE COLORADO RIVER</b>							
Baldy	9S1	9125	2/27	45	12.8	11.5	8.9 **
Canyon Creek #2	10R7-M	7500	2/26	19	5.4	3.1	3.5 **
Forest Dale	10R6	6430	2/28	4	1.4	0.8	0.7
Ft. Apache	9R5	9160	2/27	43	11.7	11.9	9.5 **
Fort Valley	11P2	7350	2/28	15	4.5	1.6	2.6
Gentry	10R5	7600	2/26	19	6.1	2.3	3.4 **
Happy Jack *	11R5	7630	2/28	19	5.8	3.5	4.4 **
Heber	10R4	7600	2/26	20	6.3	3.1	3.6 **
McNary	9R2-M	7200	2/28	18	5.9	2.7	2.1
Mormon Lake	11R4	7350	2/25	20	6.2	3.3	4.9
Mormon Mountain	11R3-M	7500	2/25	22	7.3	4.5	7.2 **
Nutriosio	9S4	8500	2/28	22	6.9	3.7	1.9
Snow Bowl #1	11P4	10260	2/28	44	13.4	12.3	---
Snow Bowl #2	11P6	11000	2/28	73	21.7	17.2	---
Wilson Lake *	9R6	9000	2/26	41	12.3	---	---

(a) 1948-62, 15 year period. (\*) Adjacent drainage. (\*\*) 1948-62 Adjusted Average. (A) Aerial observation; Water content estimated.



# PRECIPITATION

## STORAGE GAGE DATA - ABOUT MARCH 1, 1966

Drainage Basin and Storage Gage	Elev.	Current Data		1948-62	From Approx. 11/1 to date		
		Date of Reading	February Precip.	Avg. Feb. Precip.	This Year	1948-62 Average	% of Average
<u>GILA RIVER</u>							
Silver Creek Divide	9000	2/28	3.60	---	24.69	---	---
Hannagan Meadows	9030	2/27	2.68	2.02*	18.16	10.53*	172
<u>SALT RIVER</u>							
Hannagan Meadows	9030	2/27	2.68	2.02*	18.16	10.53*	172
Little Wildcat (Heber Snow Course)	7600	2/26	1.89	2.75*	20.11	10.97*	183
Maverick Fork	9050	2/27	2.70	2.34*	19.15	9.21*	208
Workman Creek **	6970	2/24	2.35	2.84	28.84	13.54	213
<u>VERDE RIVER</u>							
Baker Butte #2	7300	2/26	2.53	---	---	---	---
Copper Basin Divide	6720	2/28	2.66	---	19.50	---	---
Fort Valley **	7350	2/28	1.46	1.86	12.10	7.16	169
Happy Jack **	7480	2/28	2.10	2.05*	16.78	9.15*	183
Mingus Mountain	7660	2/28	2.34	2.11	15.77	8.00	197
Mormon Mountain	7500	2/25	2.55	---	22.37	---	---
<u>LITTLE COLORADO</u>							
Sheep Crossing (Baldy Snow Course)	9125	2/27	2.23	2.12*	16.05	8.35*	192
Little Wildcat (Heber Snow Course)	7600	2/26	1.89	2.75*	20.11	10.97*	183

\* 1948-62 Adjusted Average

\*\* Data supplied by U. S. Forest Service





ARIZONA SOIL MOISTURE - ABOUT MARCH 1, 1966

Drainage Basin and Station	<u>1/</u> Station Number	Elev.	Soil Profile in Inches		Date	Soil Moisture Content in Inches			
			Depth	Cap.		1966	Past Record		Avg.
							1965	1964	

GILA RIVER

Frisco Divide	8S1-M	8000	48	13.3	2/28	11.7	11.7	5.6	11.2
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SALT RIVER

Black River Divide	9S10-*	9100	48	16.8	2/27	18.1	17.9	15.3	15.2
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Canyon Creek #2	10R7-M	7500	48	18.3	2/26	18.3	14.7	14.1	14.3
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Corduroy Creek	10R8-*	6000	48	16.0	2/21	15.3	12.2	6.5	9.1
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McNary	9R2-M	7200	48	16.3	2/21	17.9	17.9	13.3	13.9
--------	-------	------	----	------	------	------	------	------	------

VERDE RIVER

Casner Park	11R2-M	6930	48	19.1	2/25	20.8	20.6	11.4	14.6
-------------	--------	------	----	------	------	------	------	------	------

Mormon Mountain	11R3-M	7500	48	16.1	2/25	17.7	17.7	13.3	14.7
-----------------	--------	------	----	------	------	------	------	------	------

1/ \* - Soil Moisture Station Only  
M - Snow Course and Soil Moisture Station



LIST OF SNOW SURVEYORS

<u>SNOW COURSE</u>	<u>SURVEYOR</u>
Baker Butte -----	SCS and SRVWUA
Baldy -----	SCS and SRVWUA
Bear Wallow -----	Forest Service - Allan Hinds
Beaver Head -----	N. A. Josh
Bright Angel -----	National Park Service - Bob Peterson
Camp Wood -----	Lyn Pehl
Canyon Creek #2 -----	SCS and SRVWUA
Casner Park -----	SCS and SRVWUA
Chalender -----	Forest Service - Mel Richards
Copper Basin Divide -----	SCS - Bill Gray
Coronado Trail -----	Forest Service - Curtis Connolly
Forest Dale -----	Bureau of Indian Affairs - Raymond Endfield
Ft. Apache -----	SCS and SRVWUA
Fort Valley -----	Rocky Mountain Forest & Range Exp. Station
Frisco Divide -----	Forest Service - Joe Clayton
Gaddes Canyon -----	Paul G. Lidbeck
Gentry -----	SCS and SRVWUA
Grand Canyon -----	National Park Service - Larry Hakel
Hannagan Meadows -----	N. A. Josh
Happy Jack -----	Emil O. Ryberg
Hawley Lake -----	Bureau of Indian Affairs - Raymond Endfield
Heber -----	SCS and SRVWUA
Hummingbird #2 -----	Ray Freeman
Ice King -----	James R. Wray
Inman -----	C. H. McCauley
Iron Springs -----	SCS - Bill Gray
Maverick Fork -----	SCS and SRVWUA
McNary -----	Bureau of Indian Affairs - Raymond Endfield
Milk Ranch -----	Bureau of Indian Affairs - Raymond Endfield
Mingus Mountain -----	Paul G. Lidbeck
Mogollon -----	James R. Wray
Mormon Lake -----	SCS and SRVWUA
Mormon Mountain -----	SCS and SRVWUA
Mt. Ord -----	Jim Sparks
Munds Park -----	SCS and SRVWUA
Newman Park -----	SCS and SRVWUA
Nutrioso -----	Forest Service - Curtis Connolly
Pacheta -----	Foch Phillips
Redstone Trail -----	James R. Wray
Rose Canyon -----	Forest Service - Allan Hinds
Silver Creek Divide -----	James R. Wray
Smith Cienega #1 -----	Jim Sparks
Smith Cienega #2 -----	Jim Sparks
Snow Bowl #1 -----	Forest Service - Richard Nielsen
Snow Bowl #2 -----	Forest Service - Richard Nielsen
State Line -----	Forest Service - Joe Clayton
White Spar -----	SCS - Bill Gray
Whitewater -----	Ray Freeman
Willow Ranch -----	Tiny Miller
Wilson Lake -----	SCS and SRVWUA
Workman Creek -----	Rocky Mountain Forest & Range Exp. Station



1957-58, 1958-59, 1959-60, 1960-61, 1961-62, 1962-63, 1963-64, 1964-65, 1965-66, 1966-67, 1967-68, 1968-69, 1969-70, 1970-71, 1971-72, 1972-73, 1973-74, 1974-75, 1975-76, 1976-77, 1977-78, 1978-79, 1979-80, 1980-81, 1981-82, 1982-83, 1983-84, 1984-85, 1985-86, 1986-87, 1987-88, 1988-89, 1989-90, 1990-91, 1991-92, 1992-93, 1993-94, 1994-95, 1995-96, 1996-97, 1997-98, 1998-99, 1999-00, 2000-01, 2001-02, 2002-03, 2003-04, 2004-05, 2005-06, 2006-07, 2007-08, 2008-09, 2009-10, 2010-11, 2011-12, 2012-13, 2013-14, 2014-15, 2015-16, 2016-17, 2017-18, 2018-19, 2019-20, 2020-21, 2021-22, 2022-23, 2023-24, 2024-25, 2025-26, 2026-27, 2027-28, 2028-29, 2029-30, 2030-31, 2031-32, 2032-33, 2033-34, 2034-35, 2035-36, 2036-37, 2037-38, 2038-39, 2039-40, 2040-41, 2041-42, 2042-43, 2043-44, 2044-45, 2045-46, 2046-47, 2047-48, 2048-49, 2049-50, 2050-51, 2051-52, 2052-53, 2053-54, 2054-55, 2055-56, 2056-57, 2057-58, 2058-59, 2059-60, 2060-61, 2061-62, 2062-63, 2063-64, 2064-65, 2065-66, 2066-67, 2067-68, 2068-69, 2069-70, 2070-71, 2071-72, 2072-73, 2073-74, 2074-75, 2075-76, 2076-77, 2077-78, 2078-79, 2079-80, 2080-81, 2081-82, 2082-83, 2083-84, 2084-85, 2085-86, 2086-87, 2087-88, 2088-89, 2089-90, 2090-91, 2091-92, 2092-93, 2093-94, 2094-95, 2095-96, 2096-97, 2097-98, 2098-99, 2099-00, 2100-01, 2101-02, 2102-03, 2103-04, 2104-05, 2105-06, 2106-07, 2107-08, 2108-09, 2109-10, 2110-11, 2111-12, 2112-13, 2113-14, 2114-15, 2115-16, 2116-17, 2117-18, 2118-19, 2119-20, 2120-21, 2121-22, 2122-23, 2123-24, 2124-25, 2125-26, 2126-27, 2127-28, 2128-29, 2129-30, 2130-31, 2131-32, 2132-33, 2133-34, 2134-35, 2135-36, 2136-37, 2137-38, 2138-39, 2139-40, 2140-41, 2141-42, 2142-43, 2143-44, 2144-45, 2145-46, 2146-47, 2147-48, 2148-49, 2149-50, 2150-51, 2151-52, 2152-53, 2153-54, 2154-55, 2155-56, 2156-57, 2157-58, 2158-59, 2159-60, 2160-61, 2161-62, 2162-63, 2163-64, 2164-65, 2165-66, 2166-67, 2167-68, 2168-69, 2169-70, 2170-71, 2171-72, 2172-73, 2173-74, 2174-75, 2175-76, 2176-77, 2177-78, 2178-79, 2179-80, 2180-81, 2181-82, 2182-83, 2183-84, 2184-85, 2185-86, 2186-87, 2187-88, 2188-89, 2189-90, 2190-91, 2191-92, 2192-93, 2193-94, 2194-95, 2195-96, 2196-97, 2197-98, 2198-99, 2199-00, 2200-01, 2201-02, 2202-03, 2203-04, 2204-05, 2205-06, 2206-07, 2207-08, 2208-09, 2209-10, 2210-11, 2211-12, 2212-13, 2213-14, 2214-15, 2215-16, 2216-17, 2217-18, 2218-19, 2219-20, 2220-21, 2221-22, 2222-23, 2223-24, 2224-25, 2225-26, 2226-27, 2227-28, 2228-29, 2229-30, 2230-31, 2231-32, 2232-33, 2233-34, 2234-35, 2235-36, 2236-37, 2237-38, 2238-39, 2239-40, 2240-41, 2241-42, 2242-43, 2243-44, 2244-45, 2245-46, 2246-47, 2247-48, 2248-49, 2249-50, 2250-51, 2251-52, 2252-53, 2253-54, 2254-55, 2255-56, 2256-57, 2257-58, 2258-59, 2259-60, 2260-61, 2261-62, 2262-63, 2263-64, 2264-65, 2265-66, 2266-67, 2267-68, 2268-69, 2269-70, 2270-71, 2271-72, 2272-73, 2273-74, 2274-75, 2275-76, 2276-77, 2277-78, 2278-79, 2279-80, 2280-81, 2281-82, 2282-83, 2283-84, 2284-85, 2285-86, 2286-87, 2287-88, 2288-89, 2289-90, 2290-91, 2291-92, 2292-93, 2293-94, 2294-95, 2295-96, 2296-97, 2297-98, 2298-99, 2299-00, 2300-01, 2301-02, 2302-03, 2303-04, 2304-05, 2305-06, 2306-07, 2307-08, 2308-09, 2309-10, 2310-11, 2311-12, 2312-13, 2313-14, 2314-15, 2315-16, 2316-17, 2317-18, 2318-19, 2319-20, 2320-21, 2321-22, 2322-23, 2323-24, 2324-25, 2325-26, 2326-27, 2327-28, 2328-29, 2329-30, 2330-31, 2331-32, 2332-33, 2333-34, 2334-35, 2335-36, 2336-37, 2337-38, 2338-39, 2339-40, 2340-41, 2341-42, 2342-43, 2343-44, 2344-45, 2345-46, 2346-47, 2347-48, 2348-49, 2349-50, 2350-51, 2351-52, 2352-53, 2353-54, 2354-55, 2355-56, 2356-57, 2357-58, 2358-59, 2359-60, 2360-61, 2361-62, 2362-63, 2363-64, 2364-65, 2365-66, 2366-67, 2367-68, 2368-69, 2369-70, 2370-71, 2371-72, 2372-73, 2373-74, 2374-75, 2375-76, 2376-77, 2377-78, 2378-79, 2379-80, 2380-81, 2381-82, 2382-83, 2383-84, 2384-85, 2385-86, 2386-87, 2387-88, 2388-89, 2389-90, 2390-91, 2391-92, 2392-93, 2393-94, 2394-95, 2395-96, 2396-97, 2397-98, 2398-99, 2399-00, 2400-01, 2401-02, 2402-03, 2403-04, 2404-05, 2405-06, 2406-07, 2407-08, 2408-09, 2409-10, 2410-11, 2411-12,

17

... ..

...the fact that the *in vitro* and *in vivo* results are in good agreement, and that the *in vivo* results are in good agreement with the results obtained from the *in vitro* studies.

# The Following Organizations Cooperate in the Arizona Snow Survey Work

## FEDERAL

Department of Agriculture

Soil Conservation Service

Forest Service

Apache Forest

Coconino Forest

Coronado Forest

Gila Forest

Kaibab Forest

Prescott Forest

Rocky Mountain Forest and Range Experiment Station

Tonto Forest

Department of Commerce

Weather Bureau

Arizona Section

Department of Interior

Bureau of Reclamation

Region III

Geological Survey

Arizona District

Bureau of Indian Affairs

Fort Apache Reservation

San Carlos Irrigation Project

National Park Service

Grand Canyon National Park

Gila Water Commissioner

Safford, Arizona

## STATE

Arizona Agricultural Experiment Station

## IRRIGATION PROJECTS

Salt River Valley Water Users' Association

Phoenix, Arizona

San Carlos Irrigation and Drainage District

Coolidge, Arizona

## PRIVATE

Southwest Forest Industries, Inc.

McNary, Arizona

Other organizations and individuals furnish valuable information for the snow survey reports. Their cooperation is gratefully acknowledged.

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CURRENT SERIAL RECORDS

**WATER SUPPLY OUTLOOK**  
and  
**FEDERAL - STATE - PRIVATE COOPERATIVE SNOW SURVEYS**  
for  
**ARIZONA**

UNITED STATES DEPARTMENT of AGRICULTURE...SOIL CONSERVATION SERVICE,  
SALT RIVER VALLEY WATER USERS ASSOCIATION  
and  
ARIZONA AGRICULTURAL EXPERIMENT STATION

Data included in this report were obtained by the agencies named above in cooperation with the Federal, State and private organizations listed on the last page of this report.

AS OF  
**MAR. 15, 1966**



# UNITED STATES DEPARTMENT OF AGRICULTURE - SOIL CONSERVATION SERVICE

## To Recipients of Water Supply Outlook Reports:

Most of the usable water in western states originates as mountain snowfall. This snowfall accumulates during the winter and spring, several months before the snow melts and appears as streamflow. Since the runoff from precipitation as snow is delayed, estimates of snowmelt runoff can be made well in advance of its occurrence. Streamflow forecasts published in this report are based principally on measurement of the water equivalent of the mountain snowpack.

Forecasts become more accurate as more of the data affecting runoff are measured. All forecasts assume that climatic factors during the remainder of the snow accumulation and melt season as they affect runoff will add to be an effective average. Early season forecasts are therefore subject to a greater change than those made on later dates.

The snow course measurement is obtained by sampling snow depth and water equivalent at surveyed and marked locations in mountain areas. A total of about ten samples are taken at each location. The average of these are reported as snow depth and water equivalent. These measurements are repeated in the same location near the same dates each year.

Snow surveys are made monthly or semi-monthly from January 1 through June 1 in most states. There are about 1400 snow courses in Western United States and in the Columbia Basin in British Columbia. In the near future, it is anticipated that automatic snow water equivalent sensing devices along with radio telemetry will provide a continuous record of snow water equivalent at key locations.

Detailed data on snow course and soil moisture measurements are presented in state and local reports. Other data or reservoir storage, summaries of precipitation, current streamflow, and soil moisture conditions at valley elevations are also included. The report for Western United States presents a broad picture of water supply outlook conditions, including selected streamflow forecasts, summary of snow accumulation to date, and storage in larger reservoirs.

Snow survey and soil moisture data for the period of record are published by the Soil Conservation Service by states about every five years. Data for the current year is summarized in a West-wide basic data summary and published about October 1 of each year.

Listed below are water supply outlook reports based on Federal-State-Private Cooperative snow surveys. Those published by the Soil Conservation Service may be obtained from Soil Conservation Service, Room 507, Federal Building, 701 N. W. Glisan, Portland, Oregon 97209.

### PUBLISHED BY SOIL CONSERVATION SERVICE

<u>REPORTS</u>	<u>ISSUED</u>	<u>LOCATION</u>	<u>COOPERATING WITH</u>
<b>RIVER BASINS</b>			
WESTERN UNITED STATES	MONTHLY (FEB.-MAY)	PORTLAND, OREGON	ALL COOPERATORS
BASIC DATA SUMMARY	OCTOBER 1	PORTLAND, OREGON	ALL COOPERATORS
<b>STATES</b>			
ALASKA	MONTHLY (MAR.-MAY)	PALMER, ALASKA	ALASKA S.C.D.
ARIZONA	SEMI-MONTHLY (JAN.15 - APR.1)	PHOENIX, ARIZONA	SALT R. VALLEY WATER USERS ASSOC. ARIZ. AGR. EXP. STATION
COLORADO AND NEW MEXICO	MONTHLY (FEB.-MAY)	FORT COLLINS, COLORADO	COLO. STATE UNIVERSITY COLO. STATE ENGINEER N. MEX. STATE ENGINEER
IDAHO	MONTHLY (JAN.-JUNE)	BOISE, IDAHO	IDAHO STATE RECLAMATION ENGINEER
MONTANA	MONTHLY (JAN.-JUNE)	BOZEMAN, MONTANA	MONT. AGR. EXP. STATION
NEVADA	MONTHLY (JAN.-MAY)	RENO, NEVADA	NEVADA DEPT. OF CONSERVATION AND NATURAL RESOURCES - DIVISION OF WATER RESOURCES
OREGON	MONTHLY (JAN.-JUNE)	PORTLAND, OREGON	OREG. STATE UNIVERSITY OREGON STATE ENGINEER
UTAH	MONTHLY (JAN.-JUNE)	SALT LAKE CITY, UTAH	UTAH STATE ENGINEER
WASHINGTON	MONTHLY (FEB.-JUNE)	SPOKANE, WASHINGTON	WN. STATE DEPT. OF CONSERVATION
WYOMING	MONTHLY (FEB.-JUNE)	CASPER, WYOMING	WYOMING STATE ENGINEER

### PUBLISHED BY OTHER AGENCIES

<u>REPORTS</u>	<u>ISSUED</u>	<u>AGENCY</u>
BRITISH COLUMBIA	MONTHLY (FEB.-JUNE)	WATER RESOURCES SERVICE, DEPT. OF LANDS, FOREST AND WATER RESOURCES, PARLIAMENT BLDG., VICTORIA, B.C., CANADA
CALIFORNIA	MONTHLY (FEB.-MAY)	CALIF. DEPT. OF WATER RESOURCES, P.O. BOX 388, SACRAMENTO, CALIF.

**WATER SUPPLY OUTLOOK**  
and  
**FEDERAL - STATE - PRIVATE COOPERATIVE SNOW SURVEYS**  
**for**  
**ARIZONA**

(Salt, Verde, Gila and Part of Lower Colorado River Basin)

*Report prepared by*

RICHARD W. ENZ...SNOW SURVEY SUPERVISOR  
SOIL CONSERVATION SERVICE  
ROOM 6029 FEDERAL BUILDING  
PHOENIX, ARIZONA 85025

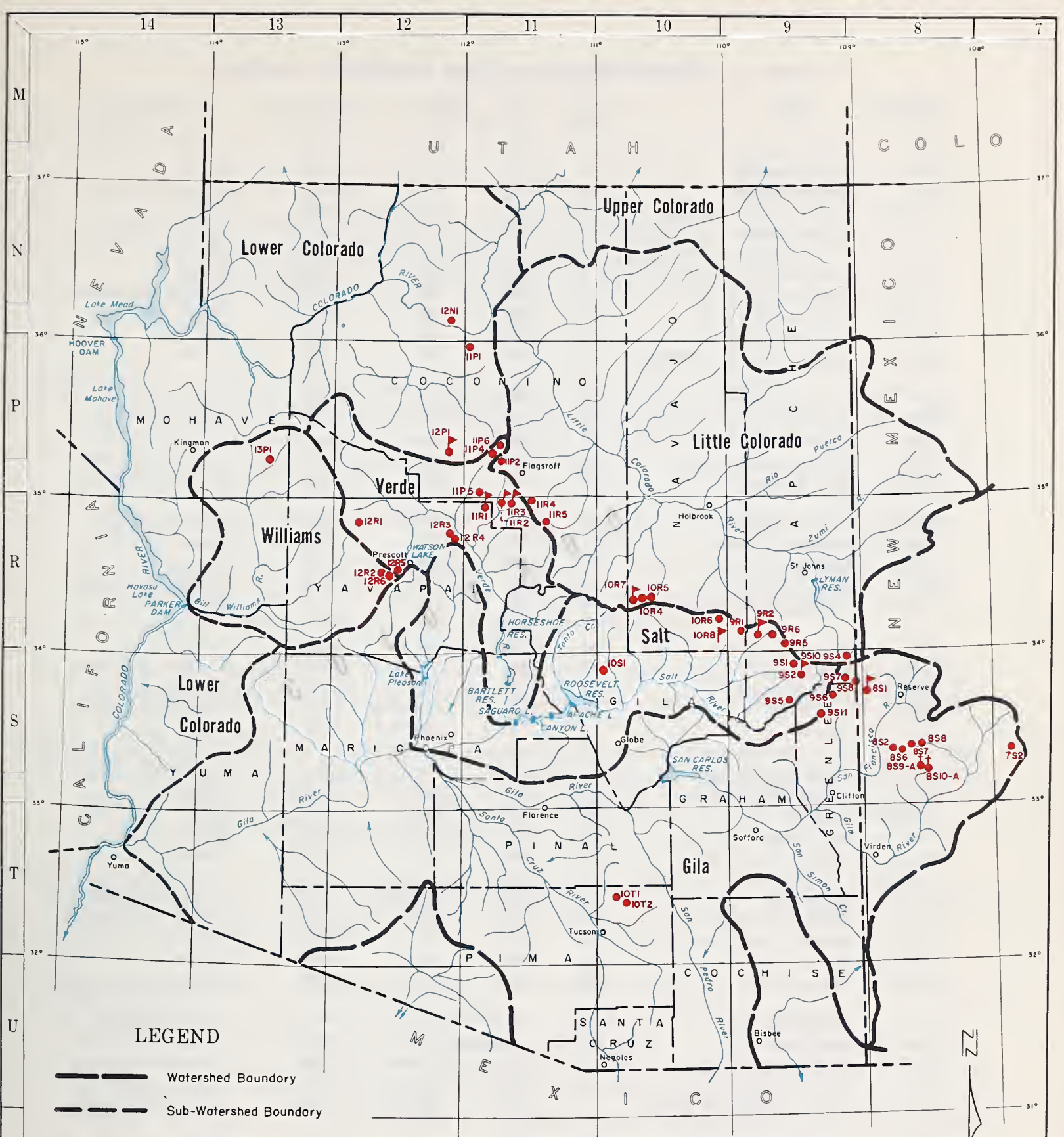
*Issued by*

MERRITT D. BURDICK  
STATE CONSERVATIONIST  
SOIL CONSERVATION SERVICE

VICTOR I. CORBELL  
PRESIDENT  
SALT RIVER VALLEY WATER USERS ASSOCIATION







# **ARIZONA** **COOPERATIVE SNOW SURVEYS** Snow Courses and Sub-Watersheds

25 0 25 50 75  
SCALE IN MILES



# INDEX to SNOW COURSES and SOIL MOISTURE STATIONS

Number**	Name	Sec	Twp	Rge***	Elevation	River Basin
9S1	Baldy (p)	28	7N	27E	9125	Little Colorado
10T1	Bear Wallow	6	12S	16E	8100	Gila
9S6	Beaver Head	13	4N	30E	8000	San Francisco
9S10-*	Black River Divide	10	6N	27E	9400	Salt
12N1	Bright Angel	34	33N	3E	8400	Lower Colorado
12R1	Camp Wood	3	16N	6W	5700	Verde
10R7-M	Canyon Creek #2	18	11N	15E	7500	Little Colorado
11R2-M	Casner Park	19	18N	8E	6930	Verde
12P1-M	Chalender	27	22N	3E	7100	Verde
12R6	Copper Basin Divide (p)	23	13N	3W	6720	Verde
10R8 -*	Corduroy Creek	4	8N	21E	6000	Salt
9S7	Coronado Trail	26	5N	30E	8000	San Francisco
10R6	Forest Dale	2	9N	21E	6430	Salt
11P2	Fort Valley (p)	22	22N	6E	7350	Little Colorado
9R5	Ft. Apache	18	7N	27E	9160	Little Colorado
8S1-M	Frisco Divide	31	6S	20W****	8000	San Francisco
12R4	Gaddes Canyon	11	15N	2E	7600	Verde
10R5	Gentry	36	11N	15E	7650	Salt
11P1	Grand Canyon	21	30N	4E	7500	Lower Colorado
9S11	Hannagan Meadows (p)	19	3N	29E	9090	Salt
11R5	Happy Jack	30	17N	9E	7630	Verde
10R4	Heber (p)	28	11N	15E	7600	Little Colorado
8S9-A	Hummingbird	19	11S	17E	10550	San Francisco
8S6	Ice King	6	11S	18W****	8020	San Francisco
7S2	Inman	6	11S	10W****	7800	Gila
12R2	Iron Springs	22	14N	3W	6200	Bill Williams
9S2	Maverick Fork (p)	13	6N	27E	9150	Salt
9R2-M	McNary	23	8N	23E	7200	Salt
9R1	Milk Ranch	33	8N	23E	7000	Salt
12R3	Mingus Mountain	3	15N	2E	7100	Verde
8S2	Mogollon	2	11S	19W****	7000	San Francisco
11R4	Mormon Lake	13	18N	8E	7350	Little Colorado
11R3-M	Mormon Mountain (p)	14	18N	8E	7500	Verde
11R1-M	Munds Park	7	18N	7E	6500	Verde
11P5-M	Newman Park	25	19N	6E	6750	Verde
9S4	Nutriso	23	6N	30E	8500	San Francisco
9S5	Pacheta	27	4-1/2N	27E	7800	Salt
8S7	Redstone Trail	5	11S	18W****	8600	San Francisco
10T2	Rose Canyon	15	12S	16E	7300	Gila
8S8	Silver Creek Divide	4	11S	18W****	9000	San Francisco
11P4	Snow Bowl #1 (p)	36	23N	6E	10260	Verde
11P6	Snow Bowl #2	31	23N	7E	11000	Verde
9S8	State Line	6	6S	21W****	8000	San Francisco
12R5	White Spar	19	13N	2W	6000	Verde
8S10-A	Whitewater	19	11S	17E	10750	Gila
13P1	Willow Ranch	16	21N	11W	5000	Bill Williams
9R6	Wilson Lake	4	7N	26E	9000	Salt
10S1	Workman Creek	33	6N	14E	6900	Salt

\* SOIL MOISTURE STATION ONLY

\*\* NUMBER INDICATES LOCATION OF SNOW COURSE WITHIN COORDINATE RECTANGLE.  
THUS 9N1 IS COURSE #1 IN COORDINATE RECTANGLE 9N.

\*\*\* ALL IN GILA AND SALT RIVER BASE AND MERIDIAN EXCEPT WHERE OTHERWISE INDICATED.

\*\*\*\* NEW MEXICO PRINCIPAL MERIDIAN

M SOIL MOISTURE STATION INSTALLED ON OR IN VICINITY OF SNOW COURSE.

(p) STORAGE GAGE INSTALLED ON OR IN VICINITY OF SNOW COURSE.

A AERIAL SNOW DEPTH GAGE

# ARIZONA WATER SUPPLY OUTLOOK

MARCH 15, 1966

\* \* \* \* \*  
\*  
\* The Water Supply Outlook for Arizona is excellent. \*  
\* Reservoirs are full or nearing capacity. Only \*  
\* San Carlos is not expected to fill this year. \*  
\*  
\* \* \* \* \*

SNOW COVER: Warm temperatures the past week have caused considerable melting at the lower and intermediate elevations. Although all snow depths have declined, water equivalent has held constant or increased slightly at higher elevations. The heaviest snow pack in 20 years is present at several snow courses on the Gila Watershed. Ground surveys of the aerial markers in the Mogollon Mts. revealed 93" of snow containing 34" of water. Hannagan Meadows along the Coronado Trail has 50" of snow with 18.5" of water. On the Verde Watershed snow is melting fast, but there is still 74" at the Snow Bowl #2 snow course. Water content at this 11,000' elevation is 26.4".

Snow Cover is 276% of Average on the Gila Watershed, 155% on the Salt and about 125% of Average on the Verde and Little Colorado Watersheds.

PRECIPITATION: Since January 1, precipitation on the watersheds has been only 1/2 to 3/4 of average. During the last 30 days it has been even less at most stations. For the entire winter, however, precipitation is still about 75% above average.

SOIL MOISTURE: Soils are very wet under the snow, but surface drying is evident at the lower elevations below the snow line. Subsequent storms will yield high runoff.

RESERVOIR STORAGE: Storage in the Salt River Project Reservoirs is now 92% of capacity. The forecast runoff should fill these reservoirs as well as meet irrigation needs during March and April. Lyman Reservoir is presently 71% of capacity and expected to fill the third week in April. Although San Carlos Reservoir contains 540% of Average, it is still only 36% of capacity. This is the greatest amount of water in storage since 1943.

STREAM FLOW AND WATER SUPPLY: The Salt, Verde, and Tonto streams are forecast to flow 524,000 acre feet during the March through May period. This is a reduction from previous forecasts due to the extended dry weather in March. On the Gila near Solomon there is very little change with 198,000 acre feet expected. The recent warm weather has resulted in high flows on all streams. The Salt, Verde, and Gila Rivers have been flowing between 4000 and 5000 cfs the past few days.

Free water is still being delivered on the Salt River Project to encourage early use of water. Elsewhere early irrigation is also encouraged to get maximum use of this rare surplus of water.





# STREAM FLOW FORECASTS - MARCH 15, 1966

The following summarized runoff forecasts are based principally on mountain snow cover and on the assumption that precipitation and temperature will be near average from the present time to the end of the forecast period. Appreciable deviations from normal of temperature and/or precipitation will correspondingly modify these forecasts.

SUB-WATERSHED, STREAM and STATION	SEASONAL STREAM FLOW IN THOUSANDS OF ACRE FEET					
	FORECAST PERIOD: MARCH - MAY, INCLUSIVE					
	Forecast Runoff 1966	Percent 15-Year Average	Measured Runoff			1948-62 Average
			1965	1964	1963	
Salt River near Roosevelt	360	159	395.9	93.1	120.0	226.4
Tonto Creek near Roosevelt	24	94	79.1	9.6	3.6	25.4
Verde River above Horseshoe	140	123	365.6	90.4	29.9	113.7
Gila River near Gila	81	228	32.0	12.0	23.7	35.5
Gila River near Virden	102	257	35.9	10.3	25.7	39.7
Gila River near Solomon	198	255	69.5	17.3	50.0	77.7
Frisko River at Clifton	98	242	38.5	10.0	24.8	40.5
Frisko River near Glenwood	45	260	16.6	2.3	7.1	17.3
Little Colorado River above Lyman Dam (MARCH-JUNE, Incl.)	21	241	18.6	4.5	1.9	8.7
(Month of March) Gila River near Solomon	106	275	30.2	6.6	22.1	38.7
(month of April) Little Colorado River above Lyman Dam	14.6	261	12.3	3.5	0.9	5.6

Lyman Reservoir is forecast to fill about April 18.

Gila River near Solomon is forecast to flow above 100 cfs until July 12.



# THE UNIVERSITY OF CHICAGO

The University of Chicago is a private, non-sectarian, coeducational institution of higher learning. It was founded in 1837 and is one of the oldest and largest universities in the United States. The university is organized into several divisions, including the College of Arts and Sciences, the Divinity School, the Law School, the Medical School, and the Graduate School. The university is also home to several research centers and institutes, including the Center for the Study of the History of Ideas, the Center for the Study of the History of the United States, and the Center for the Study of the History of the World.

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1837	1838	1839	1840	1841	1842
1843	1844	1845	1846	1847	1848
1849	1850	1851	1852	1853	1854
1855	1856	1857	1858	1859	1860
1861	1862	1863	1864	1865	1866
1867	1868	1869	1870	1871	1872
1873	1874	1875	1876	1877	1878
1879	1880	1881	1882	1883	1884
1885	1886	1887	1888	1889	1890
1891	1892	1893	1894	1895	1896
1897	1898	1899	1900	1901	1902
1903	1904	1905	1906	1907	1908
1909	1910	1911	1912	1913	1914
1915	1916	1917	1918	1919	1920
1921	1922	1923	1924	1925	1926
1927	1928	1929	1930	1931	1932
1933	1934	1935	1936	1937	1938
1939	1940	1941	1942	1943	1944
1945	1946	1947	1948	1949	1950
1951	1952	1953	1954	1955	1956
1957	1958	1959	1960	1961	1962
1963	1964	1965	1966	1967	1968
1969	1970	1971	1972	1973	1974
1975	1976	1977	1978	1979	1980
1981	1982	1983	1984	1985	1986
1987	1988	1989	1990	1991	1992
1993	1994	1995	1996	1997	1998
1999	2000	2001	2002	2003	2004
2005	2006	2007	2008	2009	2010
2011	2012	2013	2014	2015	2016
2017	2018	2019	2020	2021	2022

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STATUS OF ARIZONA RESERVOIR STORAGE - ABOUT MARCH 15, 1966

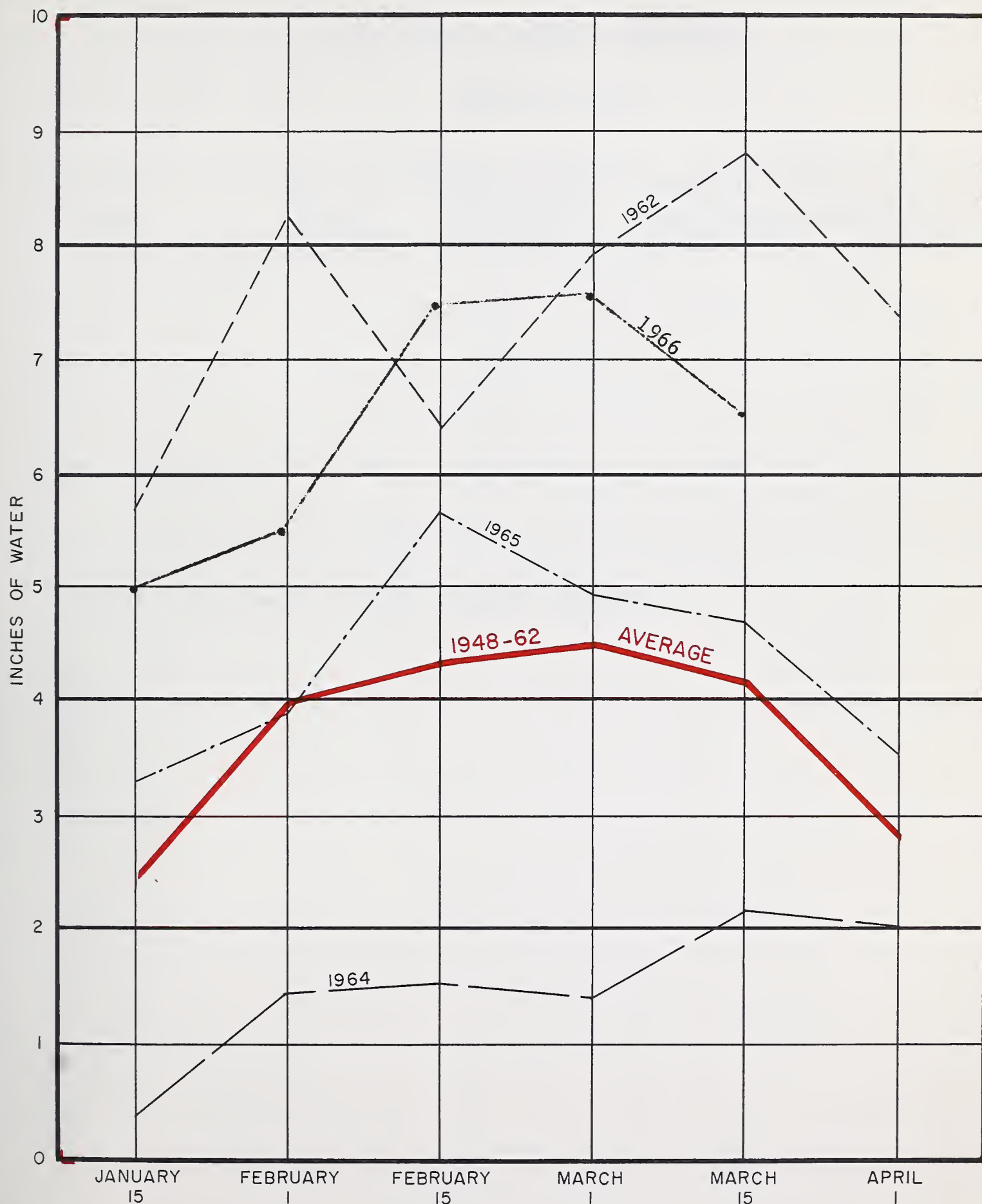
SUB- WATERSHED and/or STREAM	RESERVOIR	USABLE CAPACITY 1000's ACRE FT.	USABLE STORAGE - 1000's ACRE FEET			
			1966	1965	1964	15-Year Average 1948-62
<u>GILA RIVER DRAINAGE</u>						
Agua Fria	Lake Pleasant	157.6	157.3	32.1	13.0	31.9
Granite	Watson Lake	4.7	4.7	3.5	3.9	---
Gila	San Carlos	1,206.0	427.8	76.6	60.2	79.1
Verde	Bartlett	179.5	159.0	148.5	22.2	84.4
Verde	Horseshoe	142.8	138.2	5.6	1.6	27.5
Salt	Roosevelt	1,382.0	1,268.1	522.1	400.7	443.5
Salt	Apache	245.0	235.8	233.1	242.0	208.6
Salt	Canyon	58.0	51.2	53.4	55.5	48.7
Salt	Saguaro	70.0	51.1	63.9	65.8	54.8
<u>COLORADO RIVER DRAINAGE</u>						
Colorado	Lake Havasu	619.4	527.4	553.9	539.3	550.1
Colorado	Lake Mohave	1,810.0	1,726.2	1,687.0	1,702.0	1,579.7*
Colorado	Lake Mead	27,207.0	15,532.0	11,217.0	14,847.0	16,825.1
Colorado	Lake Powell	25,002.0	8,720.0	6,224.9	3,122.0	---
Little Colo.	Lyman	30.6	21.6	11.6	10.7	7.6
Little Colo.	Show Low Lake	5.1	5.1	3.5	0.8	1.4*

\* Average is for less than 15 years of record in the 1948-62 period.



# RELATIVE SNOW WATER ACCUMULATION ARIZONA

MARCH 15, 1966



*This graph represents the average snow water content on eleven selected snow courses on Arizona Sub-Watersheds.*



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ROYAL ANTHROPOLOGICAL INSTITUTE  
Vol. 14, 1904



Fig. 1. — A line graph showing two curves plotted on a grid. The top curve is jagged, and the bottom curve is smooth.

SNOW COVER ON ARIZONA WATERSHEDS

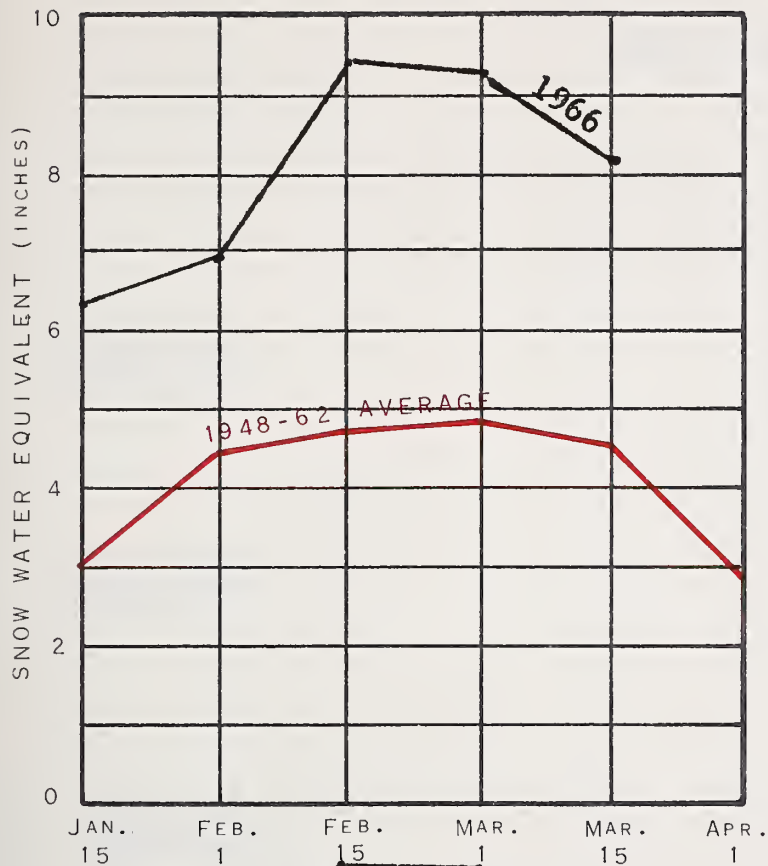
MARCH 15, 1966

Watershed	No. of Courses Average	Water Content of Snow (Inches)	This Year's Water Content of Snow Expressed as Percent of:	
			Last Year	Average *
Gila	7	4.4	249	276
Salt	10	8.2	155	180
Verde	7	4.4	127	118
Little Colorado	4	8.1	122	152

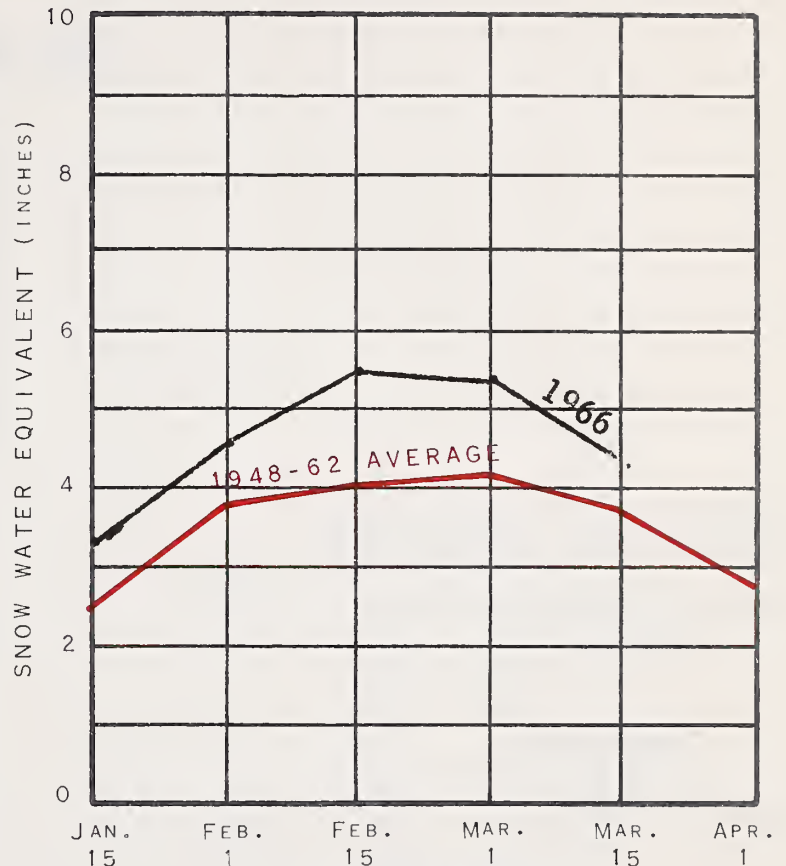
\* Actual or Estimated 1948-62, 15-year Average



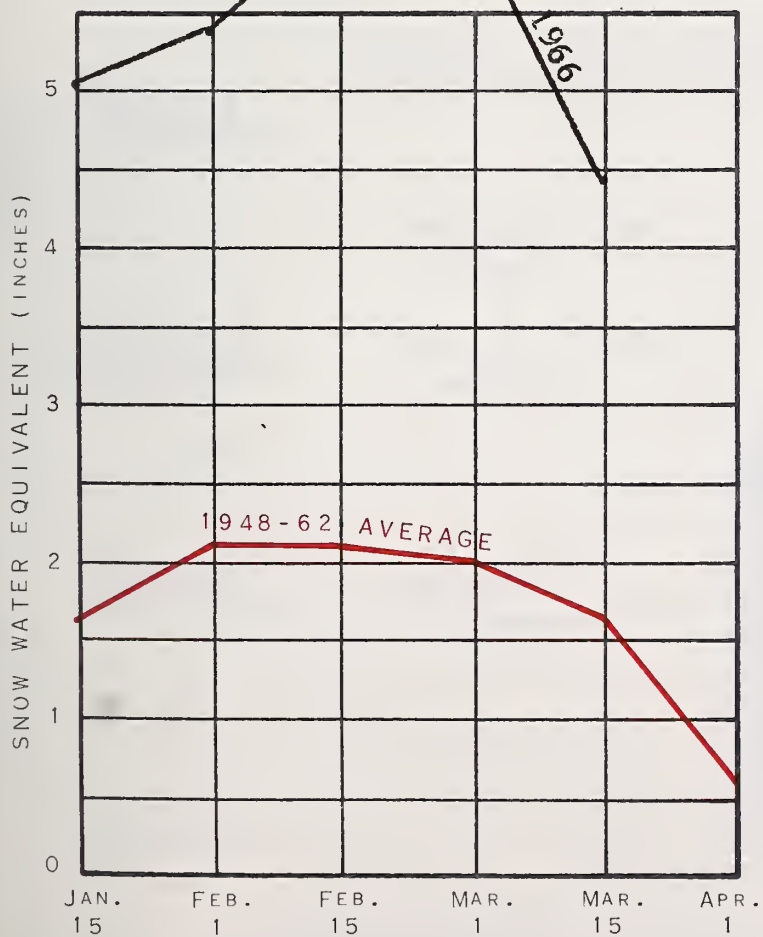
1966  
ARIZONA SNOW COVER  
BY WATERSHEDS



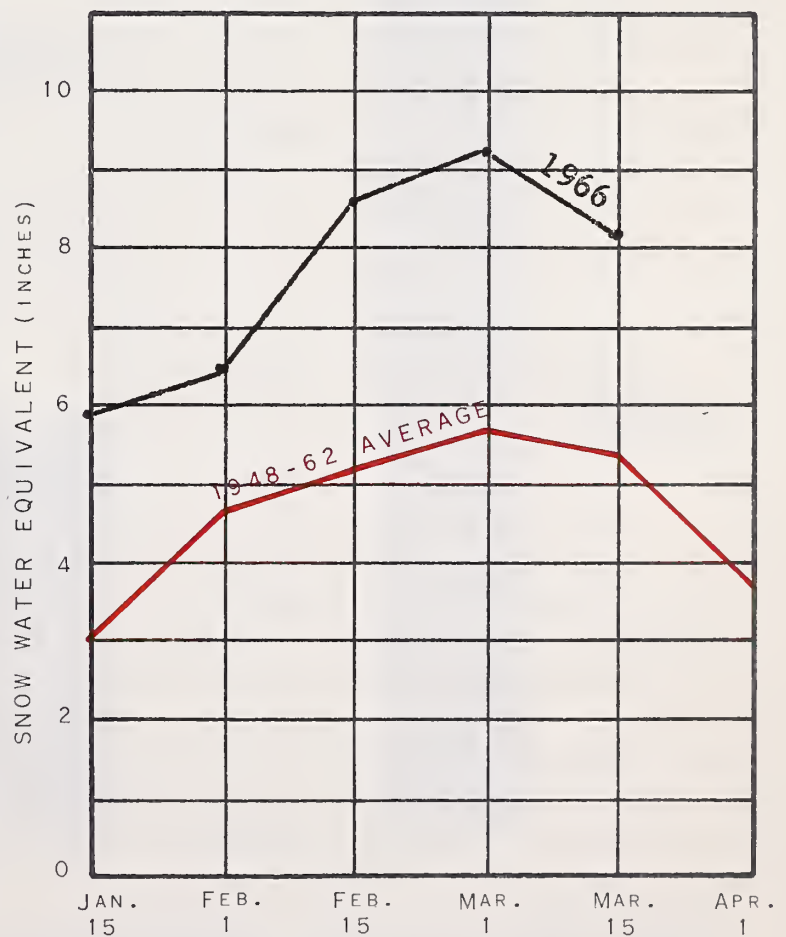
SALT RIVER



VERDE RIVER



GILA RIVER



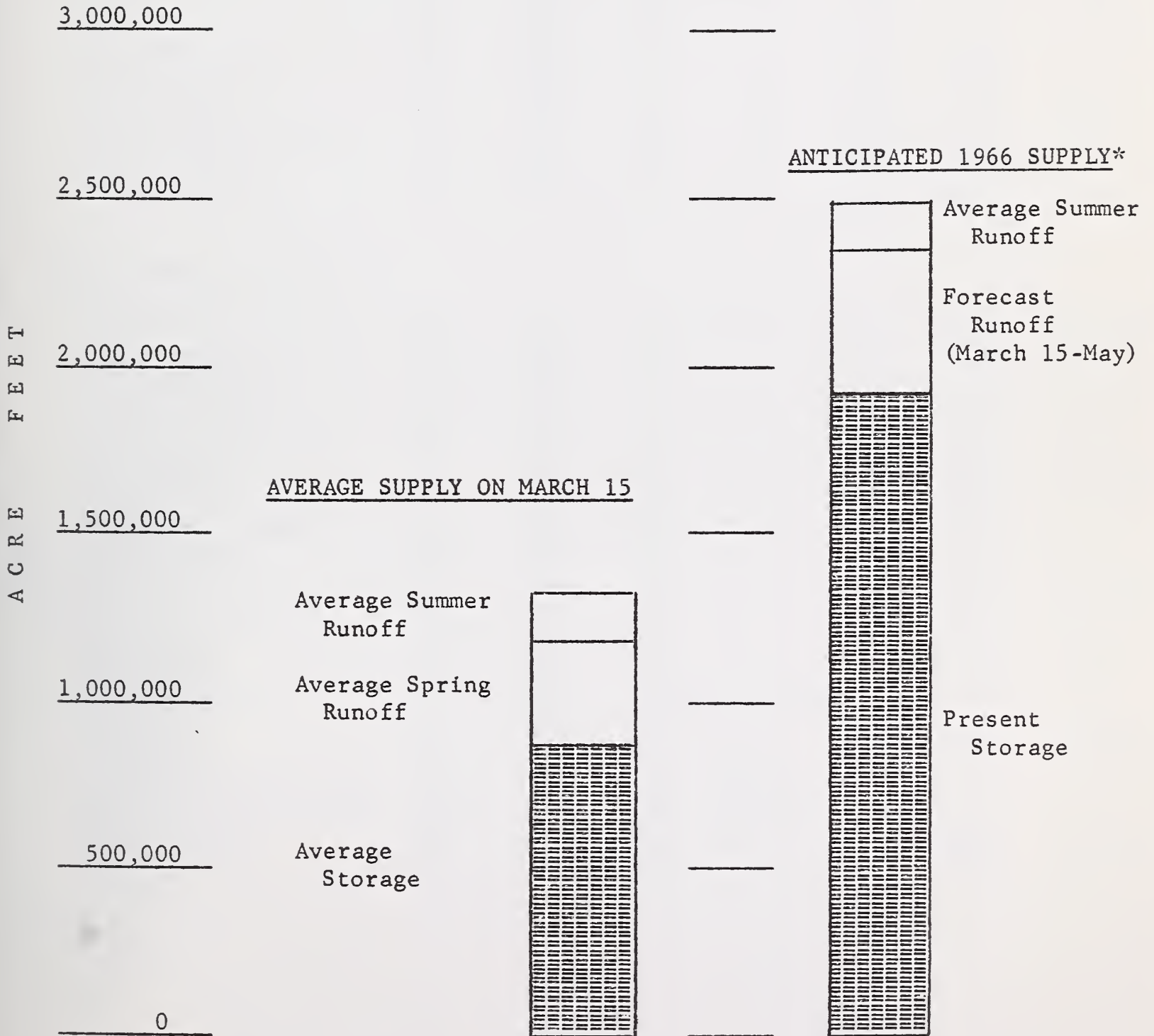
LITTLE COLORADO RIVER

BASED ON SELECTED SNOW SURVEY COURSES





WATER SUPPLY INVENTORY  
SALT RIVER VALLEY SYSTEM  
MARCH 15, 1966



\* Based on present Storage + Forecast Spring runoff + Average Summer runoff.



# SNOW ABOUT MARCH 15, 1966

DRAINAGE BASIN and SNOW COURSE			CURRENT INFORMATION			PAST RECORD	
NAME	NO.	ELEVATION	DATE OF SURVEY	SNOW DEPTH (Inches)	WATER CONTENT (Inches)	WATER CONTENT (Inches)	
						LAST YEAR	AVERAGE <sup>a</sup>

## GILA RIVER

Bear Wallow	10T1	8100	3/14	39	16.5	5.3	2.8
Beaver Head	9S6	8000	3/14	21	7.7	1.8	2.5
Coronado Trail	9S7	8000	3/14	18	7.1	4.3	2.1
Frisco Divide	8S1-M	8000	3/14	16	5.6	2.5	1.6
Hannagan Meadows *	9S11	9090	3/14	50	18.5	12.4	---
Hummingbird #2 (A)	8S10-A	10400	3/13	74	30.4	20.4	---
Ice King	8S6	8020	3/16	27	9.1	6.9	---
Inman	7S2	7800	3/14	0	0.0	T	0.4
Mogollon	8S2	7000	3/16	3	1.5	T	1.6 **
Nutriso	9S4	8500	3/14	9	4.1	2.2	1.4
Redstone Trail	8S7	8600	3/16	33	13.3	8.3	---
Rose Canyon	10T2	7300	3/14	20	8.1	1.4	1.1
Silver Creek Divide	8S8	9000	3/16	45#	20.0#	11.8	---
State Line	9S8	8000	3/14	19	6.1	1.5	1.5
Whitewater (A)	8S9-A	10500	3/13	93	34.0	23.4	---

## SALT RIVER

Baldy *	9S1	9125	3/11	41	12.2	11.0	8.7 **
Beaver Head	9S6	8000	3/14	21	7.7	1.8	2.5
Canyon Creek #2	10R7-M	7500	3/12	11	4.1	2.0	2.6 **
Coronado Trail	9S7	8000	3/14	18	7.1	4.3	2.1
Forest Dale	10R6	6430	3/14	0	0.0	0.5	0.4
Ft. Apache *	9R5	9160	3/11	40	12.6	10.9	9.6 **
Gentry	10R5	7600	3/12	11	4.7	0.9	2.4 **
Hannagan Meadows	9S11	9090	3/14	50	18.5	12.4	---
Hawley Lake	9R10	8300	3/14	22	7.9	---	---
Heber	10R4	7600	3/12	14	5.4	2.4	2.5 **
Maverick Fork	9S2	9050	3/11	47	16.8	13.1	11.3 **
McNary	9R2-M	7200	3/14	8	3.4	2.4	1.5
Milk Ranch	9R1	7000	3/14	1	0.4	1.5	0.8
Mt. Ord (A)	9R9-A	11000	Report Delayed			---	---
Nutriso *	9S4	8500	3/14	9	4.1	2.2	1.4
Pacheta	9S5	7800	3/14	22	7.1	1.8	2.8 **
Smith Cienega #1 (A)	9R7-A	9700	No Survey			---	---
Smith Cienega #2 (A)	9R8-A	9900	No Survey			---	---
Wilson Lake	9R6	9000	3/11	42	13.4	13.8	---
Workman Creek	10S1	6900	3/10	25	9.2	3.8	3.6 **

# Estimated

(a) 1948-62, 15 year period. (\*) Adjacent drainage. (\*\*) 1948-62 Adjusted Average. (A) Aerial observation: Water content estimated.





**SNOW ABOUT MARCH 15, 1966**

DRAINAGE BASIN and SNOW COURSE			CURRENT INFORMATION			PAST RECORD	
			DATE OF SURVEY	SNOW DEPTH (Inches)	WATER CONTENT (Inches)	WATER CONTENT (Inches)	
NAME	NO.	ELEVATION				LAST YEAR	AVERAGE <sup>a</sup>
<b>VERDE RIVER</b>							
Baker Butte	11R6	7300	3/14	23	9.3	---	---
Camp Wood	12R1	5700	3/14	0	0.0	1.7	0.4
Casner Park	11R2-M	6930	3/13	12	5.3	2.3	3.0 **
Chalender	12P1-M	7100	3/14	12	3.7	2.6	2.8
Copper Basin Divide	12R6	6720	3/14	3	1.1	1.9	---
Fort Valley	11P2	7350	3/14	9	3.0	1.3	2.1
Gaddes Canyon	12R4	7600	3/14	26	7.8	7.2	6.2 **
Happy Jack *	11R5	7630	3/14	10	3.0	3.9	3.2 **
Iron Springs *	12R2	6200	3/14	0	0.0	1.1	0.7
Mingus Mountain	12R3	7100	3/14	0	0.0	0.9	0.7
Mormon Lake *	11R4	7350	3/13	17	5.4	3.5	4.4
Mormon Mountain	11R3-M	7500	3/13	20	7.6	4.5	6.4 **
Munds Park	11R1-M	6500	3/13	6	2.5	---	2.2 **
Newman Park	11P5-M	6750	3/13	3	1.6	2.1	---
Snow Bowl #1	11P4	10260	3/14	41	13.2	13.0	---
Snow Bowl #2	11P6	11000	3/14	74	26.4	13.8	---
White Spar	12R5	6000	3/14	0	0.0	1.5	---
<b>BILL WILLIAMS RIVER</b>							
Camp Wood *	12R1	5700	3/14	0	0.0	1.7	0.4
Copper Basin Divide	12R6	6720	3/14	3	1.1	1.9	---
Iron Springs	12R2	6200	3/14	0	0.0	1.1	0.7
Willow Ranch	13P1	5000	3/14	0	0.0	0.0	0.1
<b>LOWER COLORADO RIVER</b>							
Bright Angel	12N1	8400	No	Survey		---	10.2 **
Chalender *	12P1-M	7100	3/14	12	3.7	2.6	2.8
Fort Valley	11P2	7350	3/14	9	3.0	1.3	2.1
Grand Canyon	11P1	7500	3/14	3	1.2	0.9	1.6
<b>LITTLE COLORADO RIVER</b>							
Baldy	9S1	9125	3/11	41	12.2	11.0	8.7 **
Canyon Creek #2	10R7-M	7500	3/12	11	4.1	2.0	2.6 **
Forest Dale	10R6	6430	3/14	0	0.0	0.5	0.4
Ft. Apache	9R5	9160	3/11	40	12.6	10.9	9.6 **
Fort Valley	11P2	7350	3/14	9	3.0	1.3	2.1
Gentry	10R5	7600	3/12	11	4.7	0.9	2.4 **
Happy Jack *	11R5	7630	3/14	10	3.0	3.9	3.2 **
Heber	10R4	7600	3/12	14	5.4	2.4	2.5 **
McNary	9R2-M	7200	3/14	8	3.4	2.4	1.5
Mormon Lake	11R4	7350	3/13	17	5.4	3.5	4.4
Mormon Mountain	11R3-M	7500	3/13	20	7.6	4.5	6.4 **
Nutriosos	9S4	8500	3/14	9	4.1	2.2	1.4
Snow Bowl #1	11P4	10260	3/14	41	13.2	13.0	---
Snow Bowl #2	11P6	11000	3/14	74	26.4	13.8	---
Wilson Lake *	9R6	9000	3/11	42	13.4	13.8	---

(a) 1948-62, 15 year period. (\*) Adjacent drainage. (\*\*) 1948-62 Adjusted Average. (A) Aerial observation: Water content estimated.



ARIZONA SOIL MOISTURE - ABOUT MARCH 15, 1966

Drainage Basin and Station	<u>1/</u> Station Number	Elev.	Soil Profile in Inches		Date	Soil Moisture Content in Inches			
			Depth	Cap.		1966	Past Record		Avg.
							1965	1964	
<u>GILA RIVER</u>									
Frisco Divide	8S1-M	8000	48	13.3	3/14	12.5	11.7	6.1	11.2
<u>SALT RIVER</u>									
Black River Divide	9S10-*	9100	48	16.8	3/11	18.1	17.9	15.1	15.5
Canyon Creek #2	10R7-M	7500	48	18.3	3/12	18.3	14.6	14.4	14.3
Corduroy Creek	10R8-*	6000	48	16.0	3/11	16.5	12.1	7.0	9.4
McNary	9R2-M	7200	48	16.3	3/11	17.9	17.9	13.3	14.2
<u>VERDE RIVER</u>									
Casner Park	11R2-M	6930	48	19.1	3/13	20.9	20.6	11.8	16.0
Mormon Mountain	11R3-M	7500	48	16.1	3/13	17.7	17.7	13.4	15.1

1/  
\* - Soil Moisture Station Only  
M - Snow Course and Soil Moisture Station





# PRECIPITATION

## STORAGE GAGE DATA - ABOUT MARCH 15, 1966

Drainage Basin and Storage Gage	Elev.	Current Data		1948-62	From Approx. 11/1 to Date		
		Date of Reading	Mar. 1-15 Precip.	Av. Precip. March 1-15	This Year	1948-62 Average	% of Average
<u>GILA RIVER</u>							
Silver Creek Divide	9000	3/15	.50#	---	25.19##	---	---
Hannagan Meadows	9030	3/14	.75	1.69*	18.91	12.22*	155
<u>SALT RIVER</u>							
Hannagan Meadows	9030	3/14	.75	1.69*	18.91	12.22*	155
Little Wildcat (Heber Snow Course)	7600	3/12	1.11	1.60*	21.22	12.57*	169
Maverick Fork	9050	3/11	.75	1.49*	19.90	10.70*	186
Workman Creek **	6970	3/10	.55	1.83	29.39	15.37	191
<u>VERDE RIVER</u>							
Baker Butte #2	7300	3/14	1.25	---	---	---	---
Copper Basin Divide	6720	3/14	.65	---	20.15	---	---
Fort Valley **	7350	3/14	1.05	.92	13.15	8.08	163
Happy Jack **	7480	3/14	.50	1.33*	17.08	10.49*	163
Mingus Mountain	7660	3/14	1.02	1.06	16.79	9.06	185
Mormon Mountain	7500	3/13	2.45	---	24.82	---	---
<u>LITTLE COLORADO</u>							
Sheep Crossing (Baldy Snow Course)	9125	3/11	1.03	1.26*	17.08	9.61*	178
Little Wildcat (Heber Snow Course)	7600	3/12	1.11	1.60*	21.22	12.57*	169

\* 1948-62 Adjusted Average

\*\* Data supplied by U. S. Forest Service

### Partially Estimated

# Estimated



# LIST OF SNOW SURVEYORS

<u>SNOW COURSE</u>	<u>SURVEYOR</u>
Baker Butte -----	SCS and SRVWUA
Baldy -----	SCS and SRVWUA
Bear Wallow -----	Forest Service - Allan Hinds
Beaver Head -----	N. A. Josh
Bright Angel -----	National Park Service - Bob Peterson
Camp Wood -----	Lyn Pehl
Canyon Creek #2 -----	SCS and SRVWUA
Casner Park -----	SCS and SRVWUA
Chalender -----	Forest Service - Mel Richards
Copper Basin Divide -----	SCS - Bill Gray
Coronado Trail -----	Forest Service - Curtis Connolly
Forest Dale -----	Bureau of Indian Affairs - Raymond Endfield
Ft. Apache -----	SCS and SRVWUA
Fort Valley -----	Rocky Mountain Forest & Range Exp. Station
Frisco Divide -----	Forest Service - Joe Clayton
Gaddes Canyon -----	Paul G. Lidbeck
Gentry -----	SCS and SRVWUA
Grand Canyon -----	National Park Service - Larry Hakel
Hannagan Meadows -----	N. A. Josh
Happy Jack -----	Emil O. Ryberg
Hawley Lake -----	Bureau of Indian Affairs - Raymond Endfield
Heber -----	SCS and SRVWUA
Hummingbird #2 -----	Ray Freeman
Ice King -----	James R. Wray
Inman -----	C. H. McCauley
Iron Springs -----	SCS - Bill Gray
Maverick Fork -----	SCS and SRVWUA
McNary -----	Bureau of Indian Affairs - Raymond Endfield
Milk Ranch -----	Bureau of Indian Affairs - Raymond Endfield
Mingus Mountain -----	Paul G. Lidbeck
Mogollon -----	James R. Wray
Mormon Lake -----	SCS and SRVWUA
Mormon Mountain -----	SCS and SRVWUA
Mt. Ord -----	Jim Sparks
Munds Park -----	SCS and SRVWUA
Newman Park -----	SCS and SRVWUA
Nutrioso -----	Forest Service - Curtis Connolly
Pacheta -----	Foch Phillips
Redstone Trail -----	James R. Wray
Rose Canyon -----	Forest Service - Allan Hinds
Silver Creek Divide -----	James R. Wray
Smith Cienega #1 -----	Jim Sparks
Smith Cienega #2 -----	Jim Sparks
Snow Bowl #1 -----	Forest Service - Richard Nielsen
Snow Bowl #2 -----	Forest Service - Richard Nielsen
State Line -----	Forest Service - Joe Clayton
White Spar -----	SCS - Bill Gray
Whitewater -----	Ray Freeman
Willow Ranch -----	Tiny Miller
Wilson Lake -----	SCS and SRVWUA
Workman Creek -----	Rocky Mountain Forest & Range Exp. Station



Dec. 11, 1891, N. 16

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# The Following Organizations Cooperate in the Arizona Snow Survey Work

## FEDERAL

Department of Agriculture

Soil Conservation Service

Forest Service

Apache Forest

Coconino Forest

Coronado Forest

Gila Forest

Kaibab Forest

Prescott Forest

Rocky Mountain Forest and Range Experiment Station

Tonto Forest

Department of Commerce

Weather Bureau

Arizona Section

Department of Interior

Bureau of Reclamation

Region III

Geological Survey

Arizona District

Bureau of Indian Affairs

Fort Apache Reservation

San Carlos Irrigation Project

National Park Service

Grand Canyon National Park

Gila Water Commissioner

Safford, Arizona

## STATE

Arizona Agricultural Experiment Station

## IRRIGATION PROJECTS

Salt River Valley Water Users' Association  
Phoenix, Arizona

San Carlos Irrigation and Drainage District  
Coolidge, Arizona

## PRIVATE

Southwest Forest Industries, Inc.  
McNary, Arizona

Other organizations and individuals furnish valuable information for the snow survey reports. Their cooperation is gratefully acknowledged.

UNITED STATES DEPARTMENT OF AGRICULTURE  
SOIL CONSERVATION SERVICE  
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**COOPERATIVE SNOW SURVEYS**

Furnishes the basic data  
necessary for forecasting  
water supply for irrigation,  
domestic and municipal water  
supply, hydro-electric power  
generation, navigation,  
mining and industry

*“The Conservation of Water begins  
with the Snow Survey”*